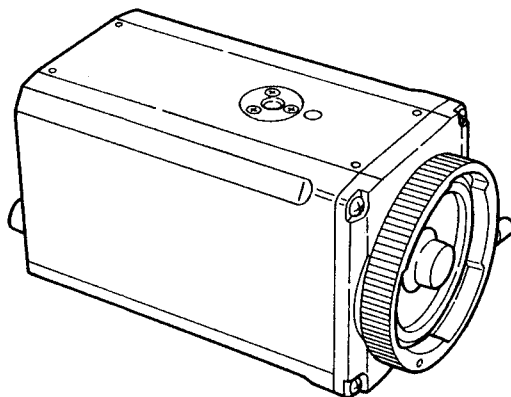


3CCD Color Video Camera


DXC-930/930P DXC-960MD

Revised-1



SONY[®]
SERVICE MANUAL

SAFETY RELATED COMPONENT WARNING

Components identified by shading and  marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

Bescheinigung des Herstellers

Hiermit wird bescheinigt, daß die CCD-Videokamera DXC-930P in Übereinstimmung mit den Bestimmungen der Amtsblattverfügung Nr. 1046/1984 funktentstört ist.

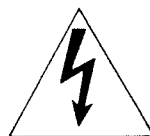
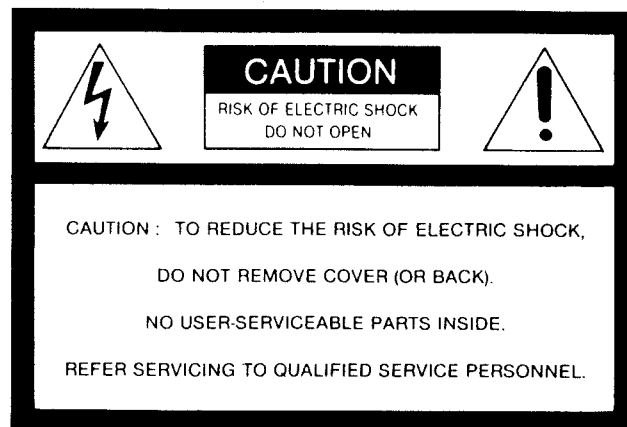
Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Hinweis

Gemäß dem Amtsblatt des Bundesministers für das Post- und Fernmeldewesen Nr. 163/1984 wird der Betreiber darauf aufmerksam gemacht, daß die von ihm mit diesem Gerät zusammengestellte Anlage auch den technischen Bestimmungen dieses Amtsblattes genügen muß.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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SECTION 1

GENERAL DESCRIPTION

1-1. FEATURES

High picture quality

The DXC-930/930P* 1/2-inch CCD color video camera can produce high quality pictures thanks to adoption of a high performance three-chip CCD pickup having about 380,000 (DXC-930*) or 420,000 (DXC-930P) effective picture elements. Three features of the camera that combinedly ensure high picture quality are:

- High horizontal resolution: 720 TV lines;
- High sensitivity (defined as minimum required illumination): 2,000 lux at f/5.6 (DXC-930*) or f/5 (DXC-930P);
- High signal-to-noise ratio: 58 dB (DXC-930*) or 56 dB (DXC-930P).

Very small size and light weight

Being very small and very light, the camera can be installed easily and safely even in strictly limited spaces where other small-sized video cameras cannot be. This feature makes it possible to use the camera in an inconspicuous manner. The following are some examples of application:

- Installing on ceilings, walls, pillars or other building members of theaters, concert halls, and so on;
- Incorporating in video conference systems;
- Using as a microscopic or endoscopic system component;
- Using as a roof-top weather monitor camera.

Wide range of incident light control

Thanks to its AGC (automatic gain control) and CCD iris control capabilities, the camera can cope with even great variations in the illuminance of the subject to produce clear and sharp pictures. When shooting under low light, the AGC feature automatically increases the video gain up to eight times. When the amount of incident light is excessive, the CCD iris control feature automatically increases the shutter speed to nearly the same effect that the lens iris is narrowed three stops down.

You can use AGC and CCD iris control combinedly with automatic lens iris control. Combined use of AGC and CCD iris control will also be very advantageous when using the camera with a microscopic system.

Electronic shutter to help overcome difficult shooting conditions

A wide speed range electronic shutter function helps you to overcome awkward shooting conditions. It gives you clear pictures of limited blur even when the subject is fast moving, and acceptably bright still pictures of low-illuminated subjects. When set to flickerless mode, the electronic shutter allows you to take flickerless pictures even under fluorescent light. Furthermore, when you use the electronic shutter in Clear Scan™ mode, you can shoot computer screen displays without horizontal stripe noise.

External synchronization

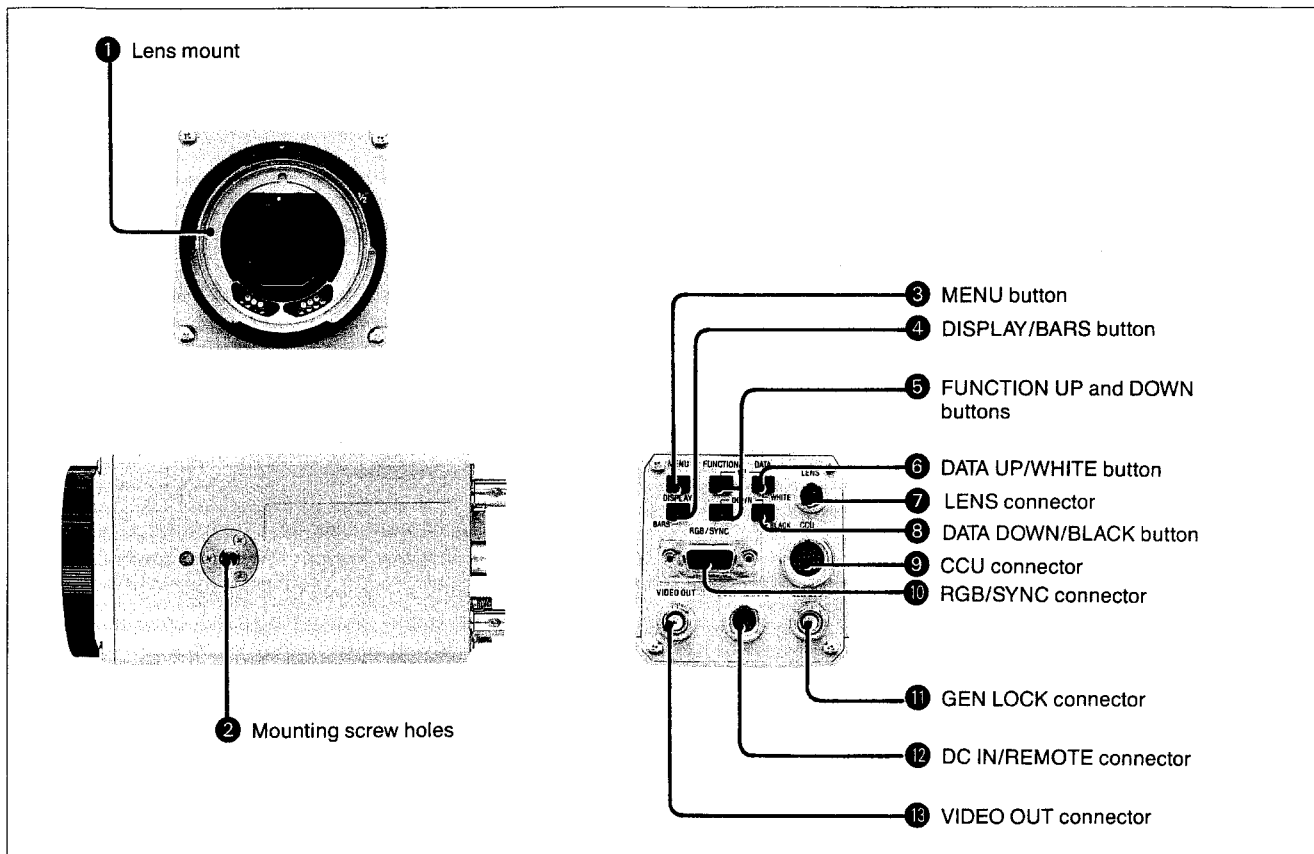
Operation of the camera can be synchronized with an external reference sync signal. When a multi-camera system is built using a number of DXC-930/930P* s, this feature permits video switching and special effect operations to be carried out without involving camera-to-camera variations in picture tone.

Useful interfaces for building a powerful camera system

- Three formats of video output are available (composite, Y/C, and R/G/B) to supply a high quality picture signal to various types of video monitor, VTR, and other video equipment.
- An RM-930 remote control unit (not supplied) can be connected to the camera.
- Connecting a CCU-M3/M3P/M7/M7P camera control unit (not supplied) to the camera will permit picture signal transmission over a long cable line of up to 100 m (328 feet) (for the CCU-M3/M3P) or 300 m (984 feet) (for the CCU-M7/M7P).

* The DXC-930 can be replaced with the DXC-960MD.

1-2. LOCATIONS AND FUNCTIONS OF PARTS





① Lens mount

Attach here an optional zoom lens, microscope adaptor or endoscope adaptor depending on the intended application of the camera.

② Mounting screw holes (one in the top of the camera body and another in the bottom)

To mount the camera on a building wall, ceiling or the like, or on a tripod, use either of these holes and a U1/4"-20 UNC screw.

③ MENU (menu recall) button

Pressing this button recalls an operational settings menu (called as the menu in this manual; see page 1-16, which will be displayed on the screen of the monitor connected to the camera. Pressing again the button makes the menu disappear from the monitor screen.

④ DISPLAY/BARS (menu display control/color bars output) button

With the menu displayed: each press of this button switches the number of display lines between 1 and 8.
With the menu not displayed: pressing this button makes the color bars signal be output.

⑤ FUNCTION UP and DOWN (menu scroll) buttons

UP button: scrolls the menu display upwards.

DOWN button: scrolls the menu display downwards.

⑥ DATA UP/WHITE (higher setting selection/white balance adjustment) button

With the menu displayed: changes the setting value for the higher.

With the menu not displayed: activates the automatic white balance adjustment function.

⑦ LENS connector

When using a 2/3-inch zoom lens, connect the lens cable to this connector.

For a 1/2-inch zoom lens, there is no necessity to use this connector.

⑧ DATA DOWN/BLACK (lower setting selection/black balance adjustment) button

With the menu displayed: changes the setting value for the lower.

With the menu not displayed: activates the automatic black balance adjustment function.

⑨ CCU (camera control unit) connector

Connect a camera control unit such as the CCU-M3/M3P/M7/M7P to this connector.

⑩ RGB/SYNC (RGB/sync signal output) connector

Outputs RGB signals and a sync signal for them. Use a CCXC-9DB/CCXC-9DD/CCMC-9DS cable for connection.

Pin assignment



Pin No.	Signal	Pin No.	Signal
1	GND	6	VBS (Y) output
2	GND	7	SYNC output
3	RED output	8	NC
4	GREEN output	9	NC (C output)
5	BLUE output		

⑪ GEN LOCK (reference sync signal input) connector

To make the camera operate in synchronization with a reference sync signal, input that signal to this connector.

⑫ DC IN/REMOTE (DC power input/remote control) connector

Connect a CMA-D1/D1CE camera adaptor (not supplied) to this connector.

- Use the CMA-D1 if your camera is the DXC-930*.
 - Use the CMA-D1CE if your camera is the DXC-930P.
- This connector is also to be used for connection of an RM-930 remote control unit (not supplied).

⑬ VIDEO OUT (composite video signal output) connector

The camera signal is output from this connector in the form of a composite signal.

* The DXC-930 can be replaced with the DXC-960MD.

Notes on Use

Mounting the lens

Any inappropriate way of mounting the lens may cause damages to both the camera and lens. Read carefully the instructions given in "Mounting the Lens" on page 1-5.

Power supply

Be sure to operate the camera on a 12 V DC power supplied via an appropriate camera adaptor (see page 1-6) or camera control unit (see page 1-10).

Do not disassemble

Do not open the casing. Be careful that touching any internal precision components may damage them.

Keep foreign matters out of the casing

Be careful not to spill water or other liquids on the camera, or not to get flammable or metallic material inside the casing. If used with any foreign matters inside, the camera may fail or be a cause of fire or electric shock.

Keep well ventilated

Do not block air circulation around the camera to prevent internal heat build-up.

Operating or storage location

Avoid operating or store the camera in the following locations:

- Extremely hot or cold locations (see "Specifications" on page 1-21 for operating and storage temperature ranges);
- Damp or dusty locations;
- Where it is exposed to rain;
- Locations subject to strong vibrations;
- Close to generators of powerful electromagnetic radiation such as radio or TV transmitters.

Transporting

When you transport the camera, repack it as it was originally shipped. Do not discard the packing carton. It will afford maximum protection whenever you transport the camera.

Cleaning

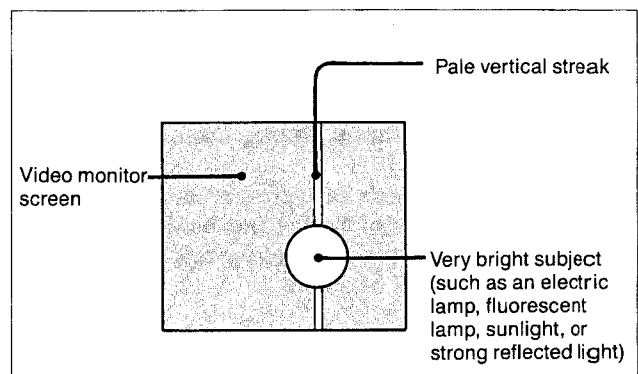
- To clean the external surfaces of the camera, use a soft, dry cloth. For severe stains, use a soft cloth dampened with a small quantity of neutral detergent, then wipe dry.
- Do not use volatile solvents such as alcohol, benzine and thinners; they may damage the surface finish.

Typical CCD Phenomena

Because of the high sensitivity of the CCD image sensors, the following phenomena may appear on the monitor screen while you are using the DXC-930/930P* color camera. These phenomena do not mean that there is anything wrong with the camera.

Vertical smear

This may appear when shooting a very bright subject with most CCD cameras, but only seldom with this DXC-930/930P*.



Aliasing

When shooting fine stripes, straight lines or similar patterns, the shot image may appear jagged.

* The DXC-930 can be replaced with the DXC-960MD.

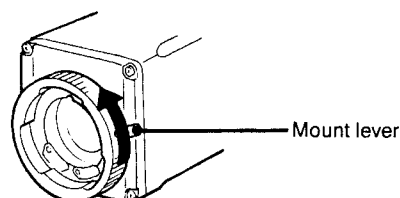
1-3. MOUNTING THE LENS, MICROSCOPE ADAPTOR OR ENDOSCOPE ADAPTOR

Mounting the Lens

Lenses that can be directly mounted on the camera are of the 1/2-inch bayonet mount type only.

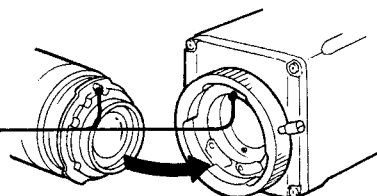
To mount a 2/3-inch lens, it is necessary to use an LO-32BMT lens mount adaptor (not supplied).

- 1** Turn the mount lever counter-clockwise as far as it will go. (If the mount cap is in place, remove it.)

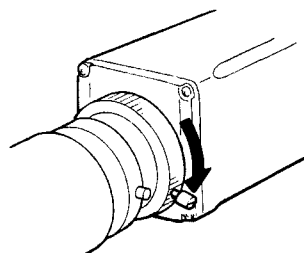


- 2** Aligning the positioning pin on the lens with the matching hole in the lens mount, fit the lens into the lens mount.

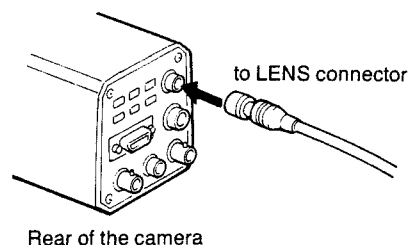
Align the pin with the hole.



- 3** Turn the mount lever clockwise as far as it will go, to lock the lens in the lens mount.



- 4** If the lens is a 2/3-inch one, connect the lens cable to the LENS connector of the camera. (This step is not necessary for 1/2-inch lenses.)



Mounting the Microscope Adaptor or Endoscope Adaptor

To attach the camera to a microscope, an operation microscope or an endoscope, it is necessary to mount an appropriate adaptor on the camera. The method for

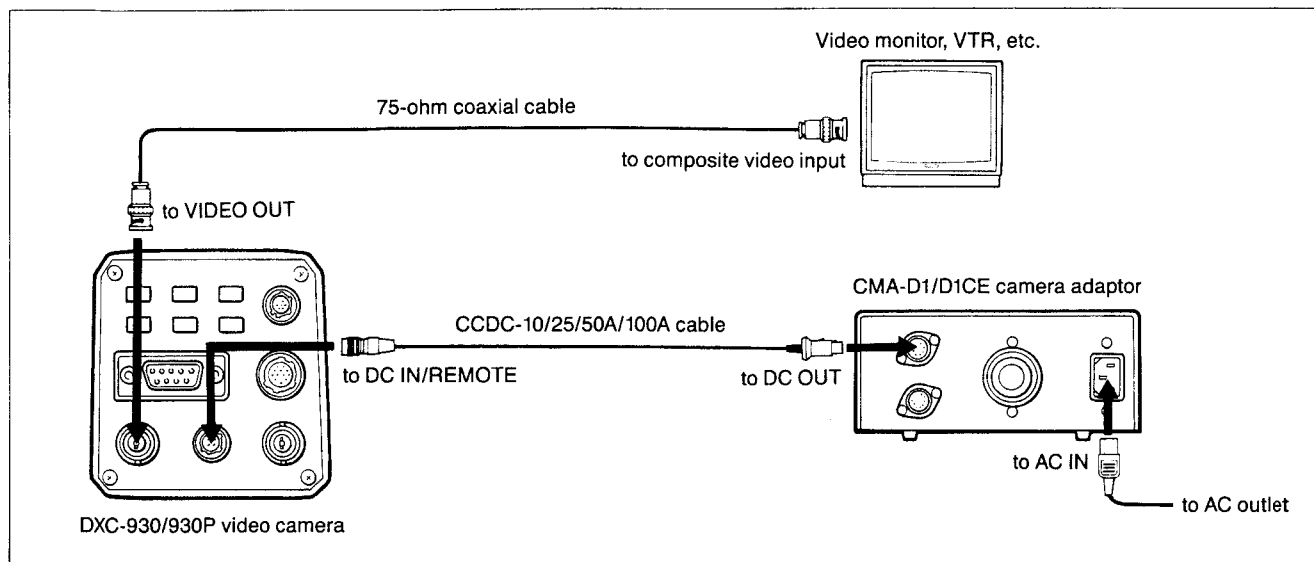
mounting these adaptors is the same as for lenses. Also refer to the manual for the adaptor.

1-4. CONNECTING TO VIDEO EQUIPMENT HAVING A COMPOSITE VIDEO INPUT

To connect the camera to video equipment having a composite video input connector, use the VIDEO OUT connector. To supply power to the camera, use an

appropriate camera adaptor:

- CMA-D1 camera adaptor for the DXC-930 *
- CMA-D1CE camera adaptor for the DXC-930P.



Connections using the VIDEO OUT connector

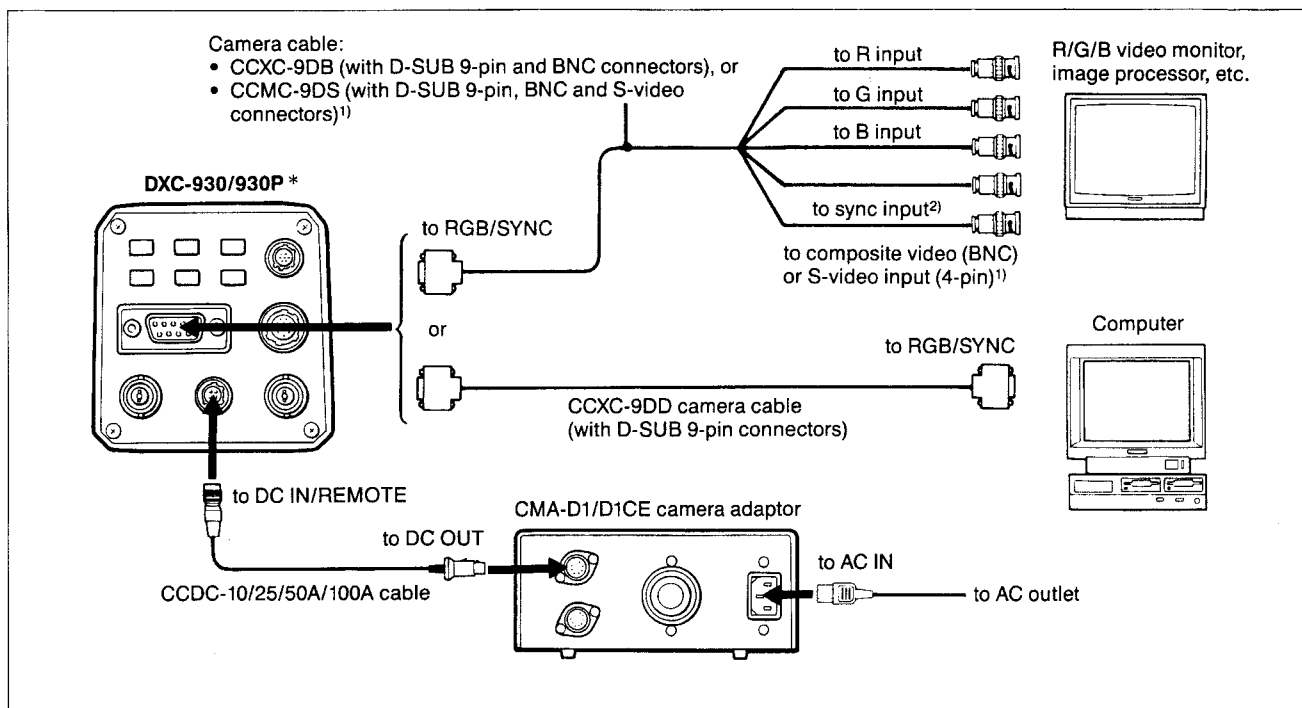
Note on use of camera adaptors

Although the CMA-D1/D1CE camera adaptor has two DC output connectors, the power consumption of the

DXC-930/930P * does not allow two camera units to be connected to a single adaptor at a time. Be sure to use one camera adaptor for each DXC-930/930P* unit.

* The DXC-930 can be replaced with the DXC-960MD.

1-5. CONNECTING TO VIDEO EQUIPMENT HAVING R/G/B OR S-VIDEO INPUTS



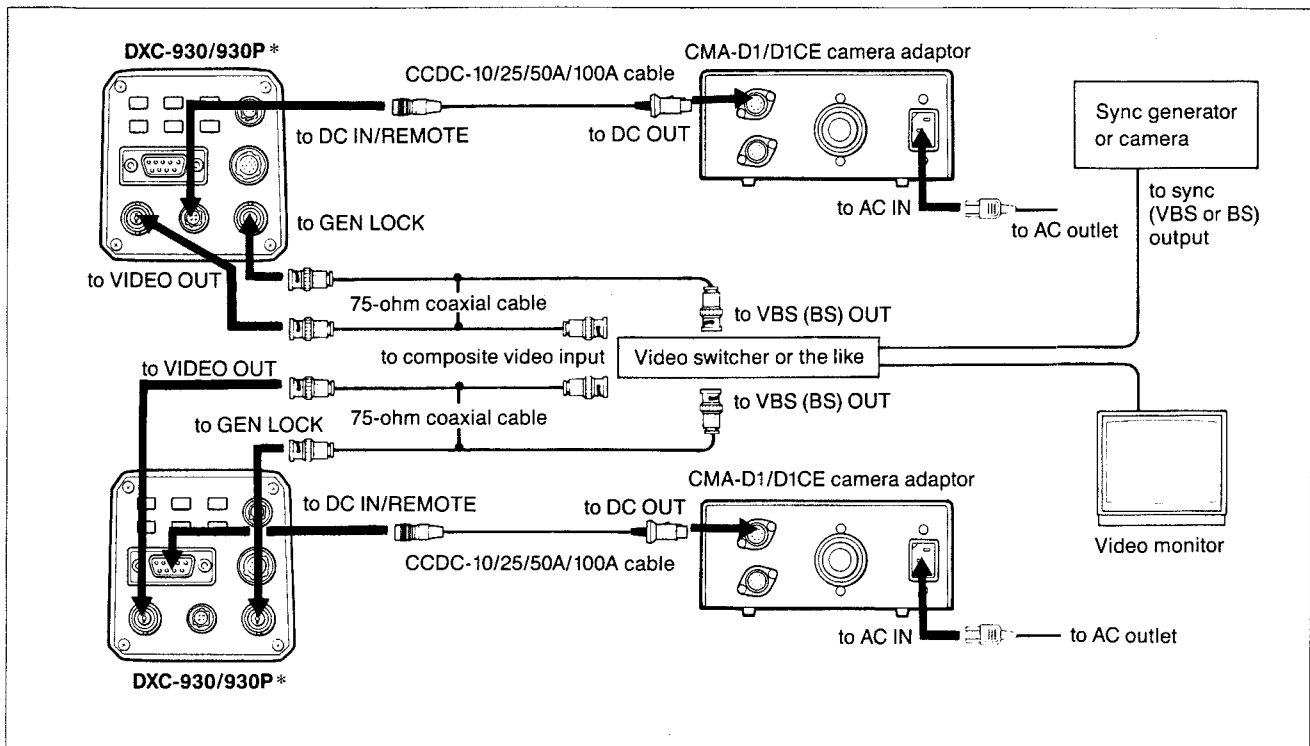
Connections using RGB/SYNC connector

1) To connect separated Y and C signals to the S-video input connector of the video equipment, use a CCMC-9DS camera cable. For switching the camera output between VBS (composite video) and Y/C, see page 1-20.

2) When using a video monitor without sync signal input connector, you can make the camera output a sync-added G signal (G.SYNC). For details, see page 1-20.

* The DXC-930 can be replaced with the DXC-960MD.

1-6. CONNECTIONS FOR MULTI-CAMERA SYSTEM



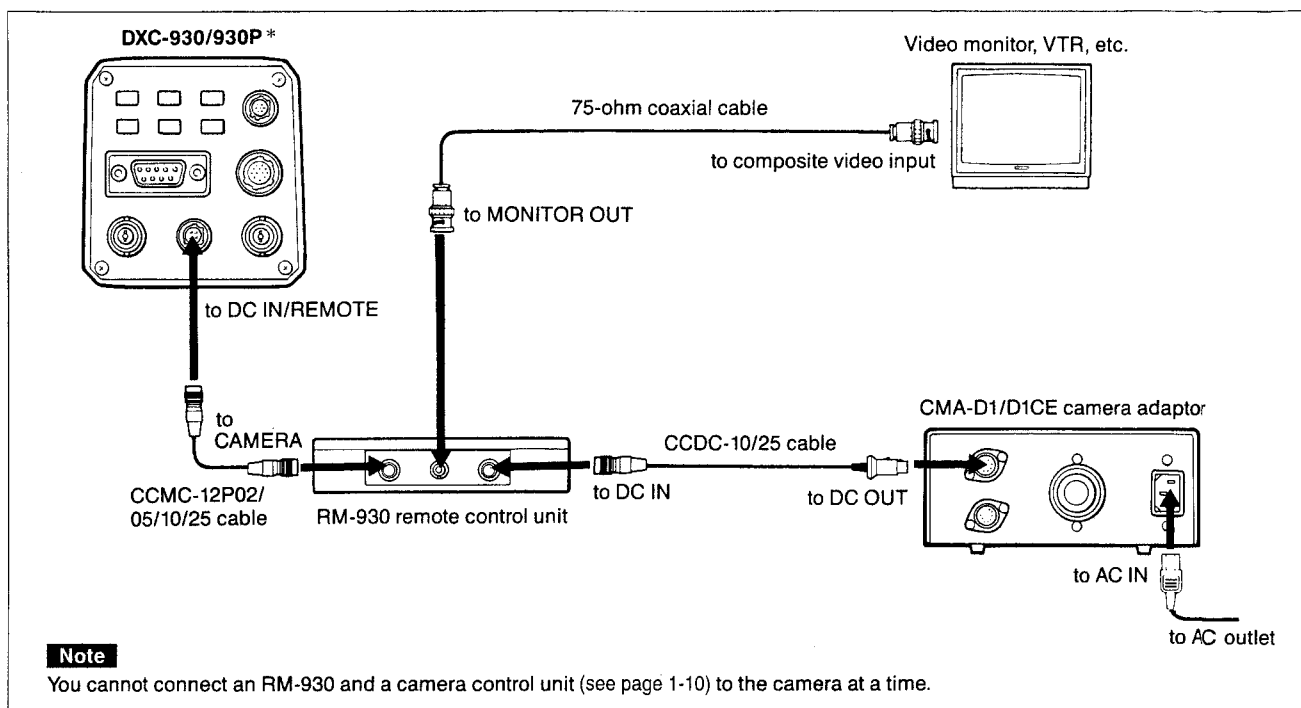
Note on multi-camera systems

When using two or more cameras by connecting to the same video switcher or the like, prevent camera-to-camera variations in picture tone by taking the following two measures:

- Supply the same sync signal to the GEN LOCK connectors of all cameras (see the above figure).
- Adjust the subcarrier and horizontal synchronization phases on all cameras. (For more details, see page 1-15).

* The DXC-930 can be replaced with the DXC-960MD.

1-7. CONNECTING A REMOTE CONTROL UNIT



About the length of the cable line when using the RM-930

The lengths of the CCMC and CCDC cables are:

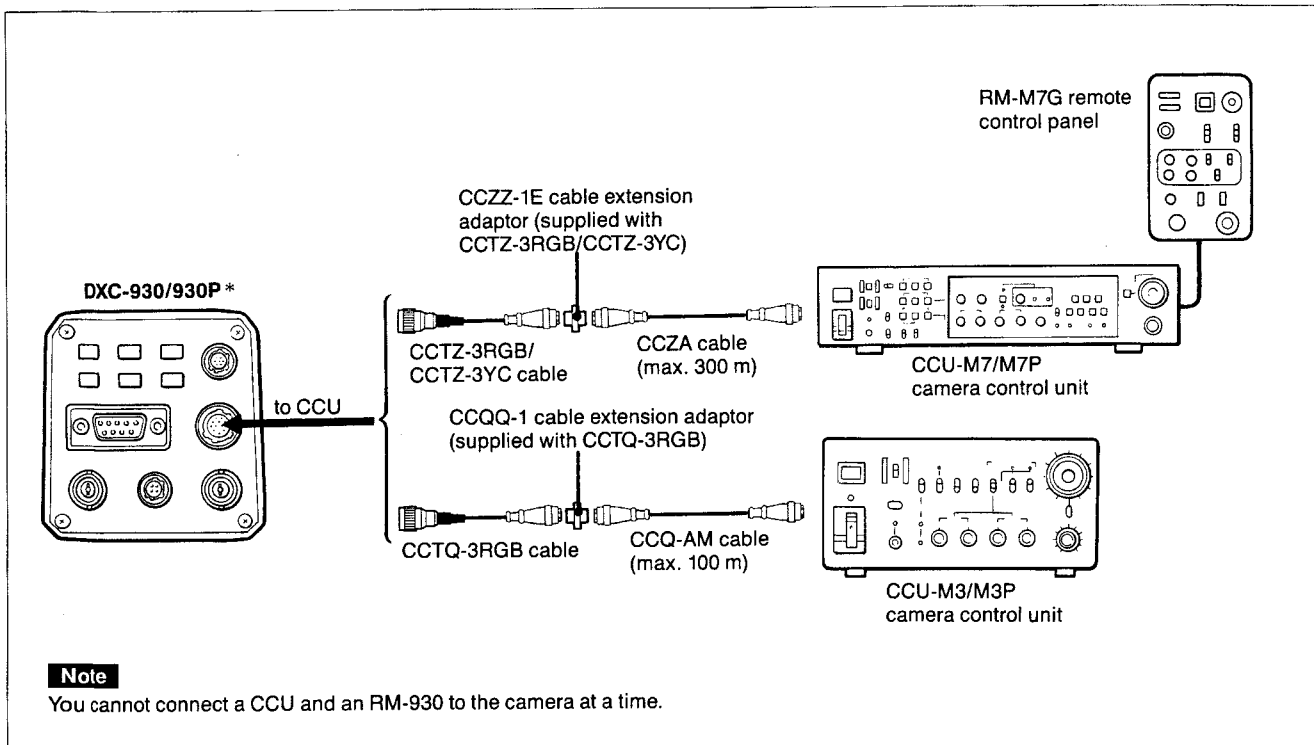
- CCMC- 5: 5 m (approx. 16 ft)
- 10: 10 m (approx. 32 ft)
- 25: 25 m (approx. 82 ft)
- CCDC-10: 10 m (approx. 32 ft)
- 25: 25 m (approx. 82 ft)

To prevent signal deteriorations, use CCMC and CCDC cables in either of the following combinations in terms of length.

CCMC cable	CCDC cable
CCMC-5	CCDC-10 or -25
CCMC-10 or -25	CCDC-10

* The DXC-930 can be replaced with the DXC-960MD.

1-8. CONNECTIONG A CAMERA CONTROL UNIT AND A REMOTE CONTROL PANEL



When connecting a CCU-M3/M3P

To make video gain control possible, make the following setting on the camera:

GAIN: STEP

STEP: 00 DB

Otherwise, changing the gain level will be impossible on the CCU-M3/M3P.

See page 1-16 for the gain setting procedure.

When connecting a CCU-M7/M7P

To make video gain control possible, make the following settings on the camera:

GAIN: STEP

STEP: 00 DB

Otherwise, changing the gain level will be impossible on the CCU-M7/M7P and only the gain setting on the camera will be effective.

See page 1-16 for the gain setting procedure.

For the CCD iris and electronic shutter, make the following settings on the camera:

CCD IRIS: OFF

SHUTTER: OFF

Otherwise, controlling the electronic shutter will be impossible on the CCU-M7.

To make it possible to change operational settings on the camera

Turn on the CCU while pressing the FUNCTION UP button of the camera. This allows you to use the menu on the camera to change settings for video gain, CCD iris, electronic shutter speed, and other functions not provided on the CCU (page 1-16). To pass the control back to the CCU after changing the settings on the camera, turn off the CCU and then turn it on again.

* The DXC-930 can be replaced with the DXC-960MD.

1-9. INSTALLING THE CAMERA

Installing on a wall or ceiling

To install the camera on a wall or ceiling, use an appropriate support or bracket, and a mounting screw as specified below, which matches both the screw hole in the top and that in the bottom of the camera body.

For more details, consult your authorized Sony dealer.

Mounting on the tripod

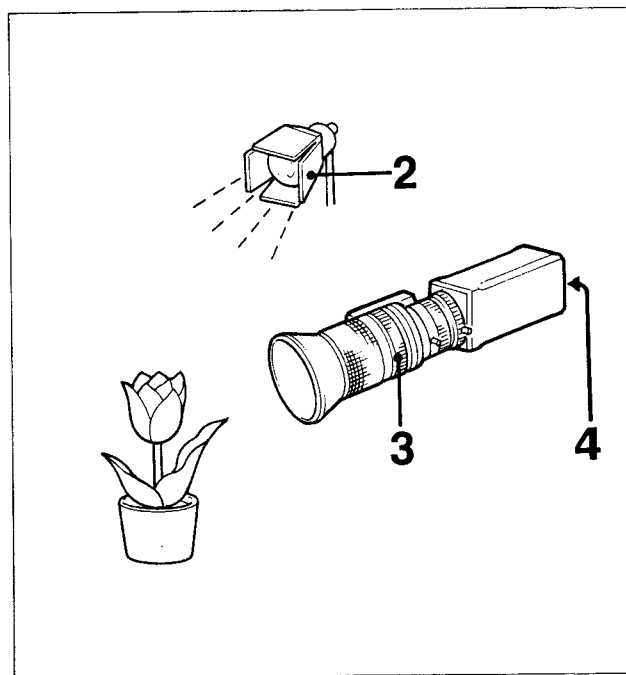
To mount the camera on a tripod, use the screw hole in the bottom of the camera body.

Mounting screw to be used



U1/4"-20 UNC
 l : 4.5 ± 0.2 mm (ISO Standard)
0.197 inches (ASA Standard)

1-10. BASIC SHOOTING PROCEDURE



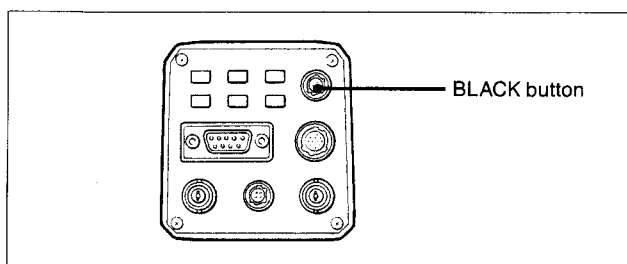
- 1 Turn on the power of the camera and all connected devices.
- 2 Illuminate the subject under proper lighting condition.
- 3 Aim the camera, and adjust the iris, focus and zoom.
- 4 Adjust the black balance and white balance.
- 5 Start the shooting.

1-11. ADJUSTING THE BLACK BALANCE

In the following cases, it is necessary to adjust the black balance so that the lower video level portions of the output image are of correct tones:

- when using the camera for the first time;
- when using the camera after a week or longer period without using it; or
- when using the camera after the temperature has changed dramatically.

The black balance setting is preserved even when you turn off the power, and it is not normally necessary to re-adjust it after you turn on the power again.



- 1 Keep the camera picture displayed on the monitor screen.
 - If the color bars signal is displayed on the screen, press the BARS button to make it disappear.
 - If the menu is displayed on the screen, press the MENU button to make it disappear.
- 2 Press the BLACK button.

Automatic black balance adjustment begins and is accomplished in several seconds. The "BLACK: OK" message appears on the monitor screen, and the adjusted black level is stored in memory automatically.

(Unless re-adjusted, the stored level will be preserved for about 10 years.)

 - The iris of the lens is automatically closed when you press the BLACK button, and remains so until the end of the black balance adjustment. If you were manually controlling the lens iris before pressing the BLACK button in step 2, you need to reopen it after adjustment because otherwise it will remain closed.
 - During the adjustment the gain control circuit operates, so the monitor screen flickers several times. Note that this is not a fault.

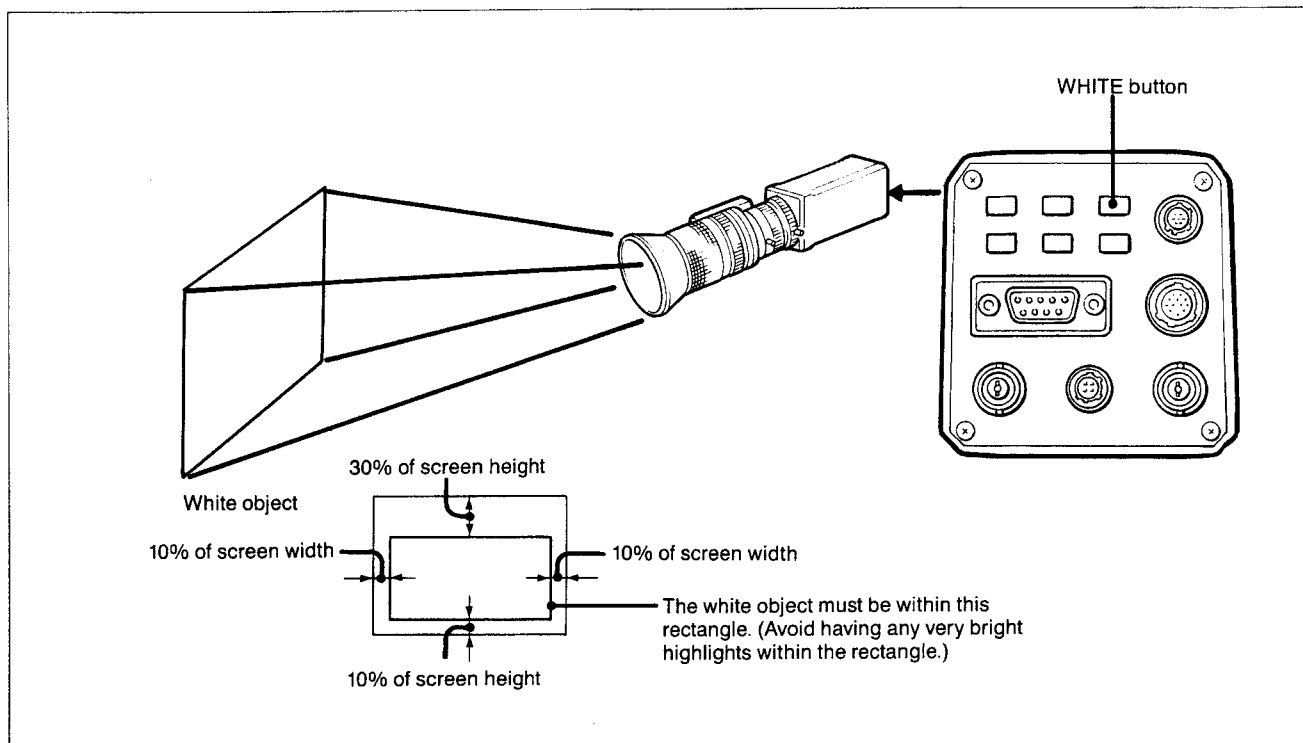
Black balance adjustment errors

If black balance adjustment has not been done successfully, either of the following two error messages appears on the monitor screen for about 4 seconds. Take the necessary action.

Error message	Meaning and Remedy
BLACK: NG	<p>The camera failed to adjust the black balance for some reason. Press the BLACK button again.</p> <p>Note</p> <p>If this message appears again and again, it is necessary to have the internal circuitry checked by qualified personnel.</p>
BLACK: NG IRIS CLOSE ?	<p>The camera was not able to adjust the black balance because of the light entering the lens.</p> <ul style="list-style-type: none">• If you were controlling the lens iris manually, close the iris and then press the BLACK button again.• If you are using a microscope adaptor without lens iris closing capability, see to it no light enters the lens and then press the BLACK button again.

1-12. ADJUSTING THE WHITE BALANCE

Each time the lighting condition changes, you have to adjust the camera for white balance so that optimal color reproduction is obtained.



- 1 Using the menu, make the following settings for color temperature and white balance adjustment mode (see page 1-16):
 - C. TEMP: 3200K or 5600K (depending on the lighting condition)
 - WHT.BAL: AUTO
- 2 Display the camera picture on the monitor screen.
 - If the color bar signal is displayed on the screen, press the BARS button to make it disappear.
 - If the menu is displayed on the screen, press the MENU button to make it disappear.
- 3 Set the lens iris control as follows:
 - For automatic iris control when using a lens with automatic iris control capability.
 - For an appropriate value of iris opening when using a manual iris control lens.
- 4 Place a white object in the same light as that which is falling on the subject to be shot, then point the camera at that object and zoom the lens.
 - The white object can be a piece of white paper or cloth, a white wall, or the like.
 - The requirements of the white area for the adjustment are as indicated in the above figure.
 - Avoid having any very bright highlights in the screen.
- 5 Press the WHITE button.

Automatic white adjustment begins and is accomplished in several seconds. The "WHITE : OK" message appears in the monitor screen. The adjusted white level is automatically stored in memory, and will be preserved for at least 10 years even if the power of the camera is turned off.

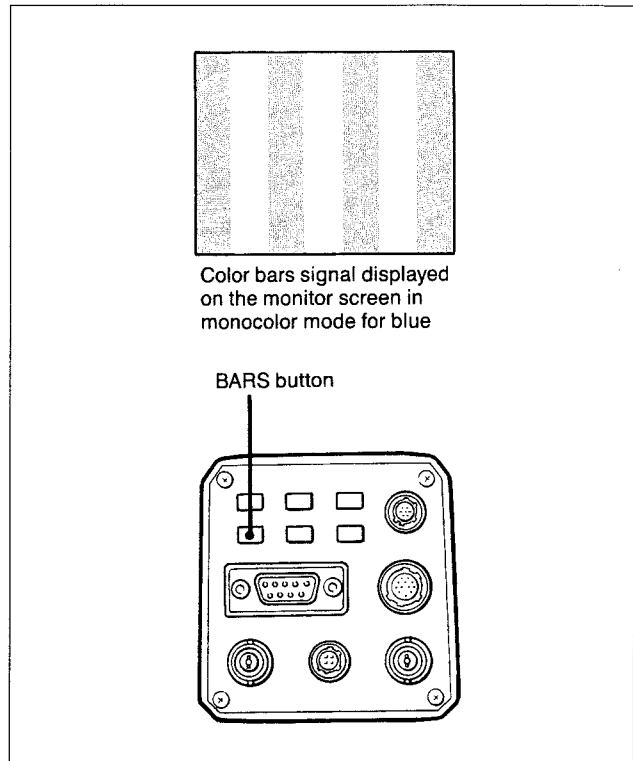
White balance adjustment errors

If white balance adjustment has not been done successfully, one of the following error messages appears on the monitor screen for about 4 seconds. Take the necessary action.

Error message	Meaning and Remedy
WHITE: NG LEVEL: LOW	The video level was too low. Take one or more of the following actions and then press the WHITE button again. <ul style="list-style-type: none">• Make the illumination brighter.• Widen the iris opening.• Increase the video gain.
WHITE: NG LEVEL: ???	The camera failed to adjust the white balance. Take one or both of the following actions and then try again. <ul style="list-style-type: none">• Get any very bright highlights out of the screen.• Adjust the illumination. Note If this message appears again and again, it is necessary to have the internal circuitry checked by qualified personnel.
WHITE: NG C.TEMP: LOW	The color temperature was too low. Change the C.TEMP setting in the menu to 5600K and try again.
WHITE: NG C.TEMP: HIGH	The color temperature was too high. Change the C.TEMP setting in the menu to 3200K and try again.
WHITE: MANU	The current WHT.BAL setting in the menu is MANU. Change the WHT.BAL setting to AUTO.

1-13. ADJUSTING THE VIDEO MONITOR

You can use the camera's color bar signal output to adjust the video monitor for optimal color reproduction.



- 1 Press the BARS button.
The camera outputs the color bar signal to the monitor.
- 2 Set the monitor for monicolor mode for blue.
- 3 Adjust the chroma and phase controls on the monitor so that all four blue bars are at the same brightness level.
- 4 Reset the monitor for normal (triplecolor) mode.
- 5 Press the BARS button again.
The picture on the screen switches from color bars to that the camera is taking.
 - The iris of the lens is automatically closed when the camera begins to output the color bar signal, and remains so until when the camera stops outputting that signal. If you were manually controlling the lens iris before pressing the BARS button in step 1, you need to reopen it after the video monitor adjustment because it otherwise will remain closed.

1-14. ADJUSTING THE PICTURE TONE ON A MULTI-CAMERA SYSTEM

When configuring a multi-camera system, it is necessary to adjust all cameras to prevent camera-to-camera variations in picture tone.

Supply the same sync signal to all cameras (see page 1-8), then make adjustments as instructed below.

When Connecting the Cameras to Video Equipment with Phase Indication Capability

When the cameras are connected to a special effect generator, a chroma keyer or other video equipment having a phase indication capability, the basic adjustment procedure is as follows.

- 1** Activate the phase indication capability of the connected video equipment.
- 2** Adjust the horizontal phase using the H. PHASE function of the menu (see page 1-20).
- 3** Adjust the subcarrier phase.
First make a coarse adjustment for 0° or 180° using the 0/180 item of the menu, then a fine adjustment using the SC item. (See page 1-20.)

For more details, refer to the instructions manual for the connected video equipment with phase indication capability.

When Not Connecting the Cameras to Video Equipment with Phase Indication Capability

Use one of the cameras as reference camera and adjust the other cameras to the reference camera one by one.

- 1** Adjust the horizontal phase.
Using the H. PHASE function of the menu (see page 1-20), make adjustment so that the reference video signal and the output signal have the same horizontal sync phase. Use a waveform monitor or an oscilloscope to check the phase.
- 2** Adjust the subcarrier phase.
First make a coarse adjustment for 0° or 180° using the 0/180 item of the menu, then make adjustment using the SC item so that the reference video signal and the output video signal have the same subcarrier phase. (See page 1-20.)
 - Use a vectorscope or the wiping capability of a special effect generator so that the reference camera picture and the picture from the camera to be adjusted are both displayed on the monitor screen in vertical or horizontal juxtaposition.

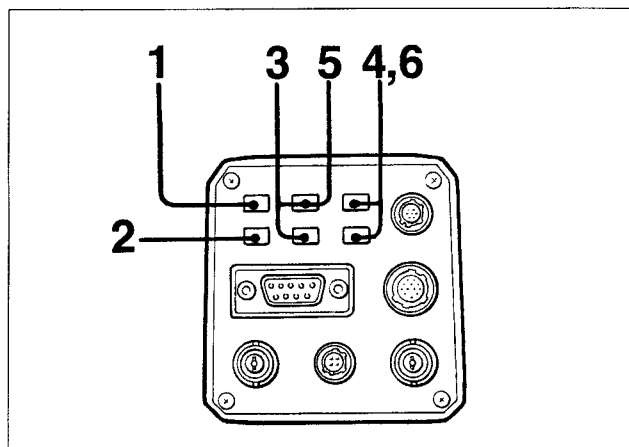
1-15. PROCEDURE FOR CHANGING SETTINGS

You can easily change any camera operational settings through simple button manipulation while seeing the menu display on the monitor screen.

This section describes how to change settings by taking up video gain and white balance as examples, which are two of the adjustment items requiring a change of setting most frequently. All the items whose settings can be changed using the menu are listed up on page 1-18.

Example 1: Changing the Video Gain Setting

When shooting in very low light, fully opening the lens iris may not be sufficient to produce acceptably bright pictures. In such case, you can obtain pictures of adequate brightness by raising the video gain setting.



- 1 Press the MENU button.
The menu display appears on the monitor screen.

Selected-line indicator

■	GAIN	STEP
	STEP	00DB
	C.TEMP	3200K
	WHT.BAL	AUTO
	R.GAIN	+00
	B.GAIN	+00
	CCD IRIS	OFF
	SHUTTER	OFF

Menu display (example)

- 2 Press the DISPLAY button.
Each press of this button switches the number of display lines between 1 and 8.
- 3 Using the FUNCTION UP and FUNCTION DOWN buttons, select the line showing the desired item.
The FUNCTION UP button scrolls the menu display upwards, and FUNCTION DOWN, downwards.
In this example, select the line showing the GAIN item.

■	GAIN	STEP
	STEP	00DB

- 4 Using the DATA UP and DATA DOWN buttons, select the desired setting.
AGC: for automatical control of video gain.
This selection means the end of the procedure.
STEP: for setting the video gain to the desired level.
Go to step 5.

■	GAIN	STEP
	STEP	00DB

- 5 Using the FUNCTION UP button, select the cursor on the line showing the STEP item.

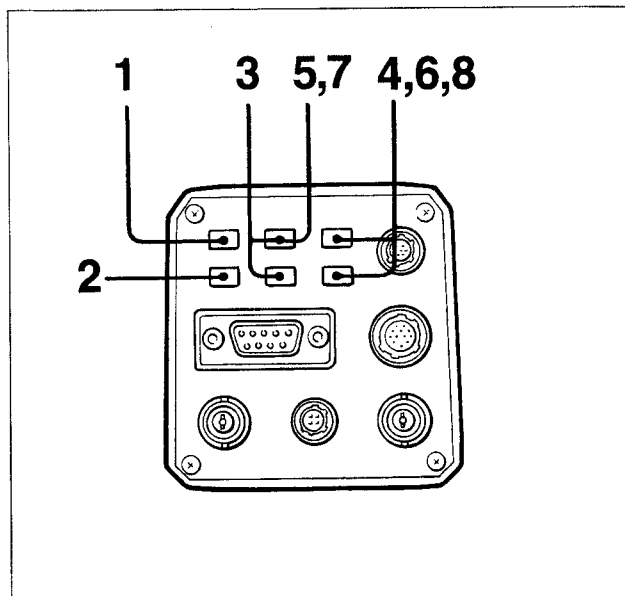
■	STEP	00DB
---	------	------

- 6 Using the DATA UP and DATA DOWN buttons, set the gain to the desired level.
You can set the gain to any value in the range of 0 to 18.

■	STEP	(00 to 18)DB
---	------	--------------

Example 2: Changing the White Balance Setting

The procedure for manual adjustment of white balance is as follows. For automatic adjustment, see page 1-13.



- 1 Press the MENU button.
The menu display appears on the monitor screen.

Selected-line indicator		
█	GAIN	STEP
	STEP	00DB
	C.TEMP	3200K
	WHT.BAL	AUTO
	R.GAIN	+00
	B.GAIN	+00
	CCD IRIS	OFF
	SHUTTER	OFF

Menu display (example)

- 2 Press the DISPLAY button.
Each press of this button switches the number of display lines between 1 and 8.

- 3 Using the FUNCTION UP and FUNCTION DOWN buttons, select the line showing desired item.
In this example, position the cursor on the line showing the WHT.BAL item.

█	WHT.BAL	AUTO
	R.GAIN	+00
	B.GAIN	+00

- 4 Using the DATA UP and DATA DOWN buttons, select MANU.
AUTO: for automatic adjustment. You can now use the automatical white balancing function.
(See page 1-13.)
MANU: for manual adjustment. Go to step 5.

█	WHT.BAL	AUTO
	R.GAIN	+00
	B.GAIN	+00

- 5 Using the FUNCTION UP button, select the line showing the R.GAIN item.

█	R.GAIN	+00
	B.GAIN	+00

- 6 Using the DATA UP and DATA DOWN buttons, set the red gain to the desired level.
You can set the gain to any value in the range of -99 to +99.

█	R.GAIN	(-99 to +99)
	B.GAIN	+00

- 7 Using the FUNCTION UP button, select the line showing the B.GAIN item.

█	B.GAIN	+00
---	--------	-----

- 8 Using the DATA UP and DATA DOWN button, set the blue gain to the desired level.
You can set the gain to any value in the range of -99 to +99.

█	B.GAIN	(-99 to +99)
---	--------	--------------

Basic principles of the operation to change settings

As is understandable from the two examples given above, the basic principle of the operation to change settings can be summarized as follows.

- 1 Press the MENU button to display the menu.
- 2 Select a menu item with the FUNCTION UP and FUNCTION DOWN buttons.
- 3 Select the desired setting with the DATA UP and DATA DOWN buttons.

Selected-line indicator

I	GAIN	STEP
	STEP	00DB
	C.TEMP	3200K
	WHT.BAL	AUTO
	R.GAIN	+00
	B.GAIN	+00
	CCD IRIS	OFF
	SHUTTER	OFF

Menu item	Setting or setting range	Initial setting
M.PED *1 (master pedestal)	-99 to +99	+00
DTL (detail)	-99 to +99	+00
H.PHASE *1 (horizontal phase)	-99 to +99 (Change of setting is enabled if a sync signal is input to GEN LOCK connector.)	+00
SC *1 (subcarrier phase)	-99 to +99	+00
0/180	0 or 180 (Change of setting is enabled if a sync signal is input to GEN LOCK connector.)	0
GAMMA (gamma compensation)	ON or OFF	ON
G.SYNC (G with sync)	ON or OFF	ON
FLD/FRM (field/frame)	FLD or FRM	FLD
D-SUB (RGB/SYNC output signal format)	YC or VBS	VBS

*1 To restore the initial, or central, setting (+00) for this item, press the DATA UP and DATA DOWN buttons simultaneously.

1-16. SETTINGS THAT CAN BE CHANGED (LIST OF MENU ITEMS)

Menu item	Setting or setting range	Initial setting
GAIN (video gain)	AGC or STEP	STEP
STEP	0 to 18 dB (Change of setting is enabled by selection of STEP on GAIN.)	0 dB
C.TEMP (color temperature)	3200K or 5600K	3200K
WHT.BAL (white balance)	AUTO or MANU	AUTO
R.GAIN *1 B.GAIN *1	-99 to +99 -99 to +99 (Change of setting is enabled by selection of MANU on WHT.BAL.)	+00 +00
CCD IRIS	ON or OFF	OFF
SHUTTER (electronic shutter)	OFF, STEP, or MANU For settings, see page 1-20.	OFF
STEP	FL, or 1/125 to 1/10000 sec. (Change of setting is enabled by selection of STEP on SHUTTER.)	FL
MANU	Functions only when CCD IRIS is set to OFF. (Change of setting is enabled by selection of MANU on SHUTTER.)	OFF

The following are the descriptions of the menu items and their settings.

GAIN (video gain)

AGC: for automatical control of video gain.

The gain of the video signal circuitry is automatically controlled depending on the brightness of the subject. This function is useful when the illuminance of the subject varies more or less dramatically.

STEP: for setting the video gain to the desired level.

Use this function for shooting in so dark places that fully opening the lens iris can still not give an acceptably bright image. The gain level can be set in the range of 0 to 18 dB in units of 1 dB.

C.TEMP (color temperature)

3200K: for indoor shooting.

5600K: for outdoor shooting.

WHT.BAL (white balance)

AUTO: for automatical adjustment of white balance described on page 1-13.

MANU: for manual adjustment of white balance. Both red gain (R.GAIN) and blue gain (B: GAIN) are adjustable.

CCD IRIS

ON: When an excessive amount of light passes through the lens, this function increases the shutter speed automatically to nearly the same effect that the lens iris is narrowed 3 stops down.

In microscope shootings using a microscope adaptor without incident light control capability, for example, an amount of incident light which is not too much for a human eye will often be so for a video camera. With CCD IRIS set to ON, an excessive amount of incident light is automatically decreased to an appropriate level for the video camera. In another example, if there is a very bright object (such as snow, or sea water reflecting sunlight) within the range of view of the lens, the incident light is automatically decreased to a certain level if of course the lens has an automatical iris control capability. Also in such case, CCD IRIS is useful to give a further decrease of incident light.

OFF: for shooting in normal lighting condition. Also use this setting when:

- The picture flickers on the monitor screen. This may occur when using the DXC-930* with lighting power of 50 Hz or the DXC-930P, of 60 Hz. In such case, set CCD IRIS to OFF and shutter speed to FL. (See the next page.)
- The camera is used under fluorescent light. This may cause slow variations in color to the picture. If the degree of color variations is unacceptable, set CCD IRIS to OFF.

SHUTTER (electronic shutter)

The electronic shutter allows you to obtain blur-free pictures of a fast moving subject, and if used combinedly with a frame memory device, adequately bright pictures of low-illuminated subjects.

Note that the SHUTTER function is effective only when CCD IRIS is set to OFF.

OFF: for inactivating the electronic shutter.

STEP: for setting the shutter speed to one of the following eight: FL, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, and 1/10000 sec.

FL gives flickerless pictures. When using the DXC-930* with lighting power of 50 Hz or the DXC-930P, of 60 Hz, setting SHUTTER to FL gives you flickerless pictures even under fluorescent light.

MANU: for adjusting the shutter speed in units of frame or horizontal scan cycle time (H) in the following rage.

DXC-930*:

In units of frame	OFF	In units of H
In FLD mode*2: 255 to 001		260/525 to 1/525
In FRM mode*2: 256 to 002		

DXC-930P:

In units of frame	OFF	In units of H
In FLD mode*2: 255 to 001		310/625 to 1/625
In FRM mode*2: 256 to 002		

*2 About FLD and FRM modes, see page 1-20.

Adjusting the shutter speed in units of frame: for example, if the setting is 050 (equivalent to about 1.7 seconds with DXC-930* and 2 seconds with DXC-930P), the whole amount of video signal accumulated during this set time will be output in the form of one complete picture (or one still frame) at intervals of about 1.7 seconds or 2 seconds depending on the camera. These pictures, which contain 50 frames of video information, are much brighter than normal one-frame pictures. Therefore, this mode of setting the shutter speed is very useful for shooting a low-illuminance subject in a dark place. You can make timing pulses for taking out still pictures be output from the RGB/SYNC connector by changing the setting of the internal SYNC switch (see the figure). You can use this function advantageously for image processing or image analysis by synchronizing an external frame memory with the timing pulses to take out still pictures.

* The DXC-930 can be replaced with the DXC-960MD.

Adjusting the shutter speed in units of H: with the DXC-930*, 1 H is 63.56 μ sec. and with the DXC-930P, 64.0 μ sec.

This function reduces a noise which appears as horizontal stripes when shooting computer screen displays for example (Clear Scan function). While checking the image on the monitor screen, you can make adjustment using the DATA UP and DATA DOWN buttons to obtain a picture showing the least possible horizontal stripe noise.

Calculating shutter speeds from SHUTTER MANU settings

Example 1: When the frame setting is 005:

DXC-930*: $005 \times 1/30 \text{ sec.} = 0.1666 \text{ sec.}$

DXC-930P: $005 \times 1/25 \text{ sec.} = 0.2 \text{ sec.}$

Example 2: When the H setting is 250/525

(DXC-930*) or 250/625 (DXC-930P):

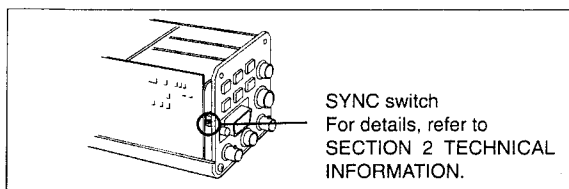
DXC-930*: $250 \times 63.56 \mu\text{sec.} + 34.78 \mu\text{sec.}$

(constant) = 15924.78 μ sec.

= approx. 0.016 sec.

DXC-930P: $250 \times 64 \mu\text{sec.} + 35.6 \mu\text{sec. (constant)}$

= 16035.6 μ sec. = approx. 0.016 sec.



Note

When SHUTTER is set to MANU, do not use the AGC function or the white balancing function.

M.PED (master pedestal)

Normally set this to +00.

When the black parts of the picture are too dull, you can make them look sharp by adjusting the the master black level. Use of a waveform monitor will make the adjustment easier.

DTL (detail)

You can use the DTL function to adjust the sharpness of the outlines of objects in the reproduced picture.

A higher set value makes the picture look sharper with more detail on the image outlines, and a lower value makes the picture look softer with less detail.

H.PHASE (horizontal phase)

When an external reference sync signal to gen-lock the camera is input to the GEN LOCK connector, the camera operates at the frequency of that reference signal. You can use this H.PHASE function to perfectly synchronize the camera operation with the reference signal to the level of horizontal phase.

SC and 0/180 (subcarrier phase)

When gen-locking the camera, use the SC and 1/180 functions to adjust the subcarrier phase.

First use 1/180 for coarse adjustment and then SC for fine adjustment.

GAMMA (gamma compensation)

ON: for normal use of the camera. The image reproduction characteristics of the monitor CRT are properly compensated for automatically to give pictures of natural tones.

OFF: for producing pictures convenient for image processing or image analysis. The video signal is output linearly from the CCD without gamma compensation.

G.SYNC (G with sync)

ON: for using a video monitor without sync input connector. A sync-added G signal can be output from the RGB/SYNC connector of the camera.

OFF: normal setting. The G signal is output from the RGB/SYNC without sync signal.

FLD/FRM (field/frame)

FLD: for shooting fast moving subjects. The CCD accumulates and outputs the charges field by field to give pictures showing a minimum blur even when the subject is fast moving.

FRM: for producing pictures with the highest possible vertical resolution. The CCD accumulates and outputs the charges frame by frame. Select this setting when using the camera with measuring instruments, image processing or image analysis systems equipped with a frame memory, or still image processing systems.

D-SUB (RGB/SYNC output signal format)

This allows you to select the output signal format for the RGB/SYNC connector.

Y/C: for separated Y and C signals.

VBS: for composite video signal.

* The DXC-930 can be replaced with the DXC-960MD.

1-17. SPECIFICATIONS

Imager	1/2-inch CCD, interline transfer type	Charge accumulation mode	Switchable between field and frame modes
Effective picture elements	DXC-930*: 768 (H) × 494 (V) DXC-930P: 768 (H) × 494 (V)	Output signals	Video:
Synchronization	Internal/external (VBS) synchronization, automatic switching		Composite: 1.0 Vp-p, 75 ohms R/G/B: 0.7 Vp-p, 75 ohms Y: 1.0 Vp-p, 75 ohms C: Same level as VBS chroma, 75 ohms Sync: 2.0 Vp-p, 75 ohms
Signal format	DXC-930*: EIA standard format DXC-930P: PAL format	Input/output connectors	VIDEO OUT: BNC, 75 ohms, unbalanced GEN LOCK: BNC, 75 ohms, unbalanced DC IN/REMOTE: 12-pin RGB/SYNC: D-SUB 9-pin LENS: 9-pin, for 2/3-inch lens CCU: 20-pin
Horizontal scanning	DXC-930*: 525 lines, 2:1 interlace DXC-930P: 625 lines, 2:1 interlace	Power supply	12 V DC
Scanning frequency	DXC-930*: Horizontal: 15.734 kHz Vertical: 59.94 Hz DXC-930P: Horizontal: 15.625 kHz Vertical: 50 Hz	Power consumption	7.8 W
Horizontal resolution	720 TV lines	Operating temperature	– 5 to + 45 °C (23 to 113°F)
Sensitivity	DXC-930*: 2,000 lux (f/5.6, 3200 K) DXC-930P: 2,000 lux (f/5, 3200 K)	Storage temperature	– 20 to + 60°C (– 4 to + 140°F)
Signal-to-noise ratio	DXC-930*: 58 dB DXC-930P: 56 dB	Dimensions (w/h/p)	70 × 72 × 123.5 mm (2 7/8 × 2 7/8 × 4 7/8 inches)
Lens mount	1/2-inch bayonet type	Weight	About 670 g (1 lb 8 oz)
Gain control	• Automatic • Manual: 0 to 18 dB in units of 1 dB	Design and specifications are subject to change without notice.	
White balancing	• Automatic • Manual: red gain and blue gain adjustable individually		
CCD iris control	On/off switchable		
Electronic shutter speed	Adjustable in the range of 1/10,000 to about 8.5 sec (DXC-930*) or 10 sec (DXC-930P)		
Gamma compensation	On/off switchable		

* The DXC-930 can be replaced with the DXC-960MD.

1-18. RECOMMENDED EQUIPMENT

Lenses

VCL-707BXM (automatic zoom, 7 ×)
VCL-712BXEA (automatic zoom, 12 ×)
VCL-716BXEA (automatic zoom, 16 ×)

Camera adaptors and camera remote control units

CMA-D1 camera adaptor (for DXC-930*)
CMA-DICE camera adaptor (for DXC-930P)
RM-930 camera remote control unit (with CCMC cable)

Microscope adaptors and couplers

MVA-40 microscope adaptor (with automatic dimmer)
MVA-41 microscope adaptor
MVAC-33-O microscope coupler (for Olympus microscopes)
MVAC-33-N microscope coupler (for Nikon microscopes)

Camera control units

CCU-M7/M7P
CCU-M3/M3P

Power supply cables

CCDC series (length: 10 m (32 ft) or 25 m (82 ft))
CCDCA series (length: 50 m (164 ft) or 100 m (328 ft))

CCU connection cables

CCTQ-3RGB (for CCU-M3/M3P, with CCQQ-1 extension connector, length: 3 m (9 ft 10 in))
CCTZ-3RGB (for CCU-M7/M7P, R/G/B transmission, with CCZZ-1 extension connector, length: 3 m (9 ft 10 in))
CCTZ-3YC (for CCU-M7/M7P, Y/C transmission, with CCZZ-1 extension connector, length: 3 m (9 ft 10 in))

Extension cables for CCU connection

CCQ-AM (for CCU-M3/M3P, max. length: 100 m (328 ft))
CCZA (for CCU-M7/M7P, max. length: 300 m (984 ft))

Camera cables

CCXC-9DB (with a D-SUB 9-pin connector at one end, and five BNC connectors at the other)
CCXC-9DD (with a D-SUB 9-pin connector at each end)
CCMC-9DS (with a D-SUB 9-pin connector, and four BNC and one S- video connectors at the other)

1-19. GLOSSARY

Some of the technical terms used most often in video camera technology and operation are explained hereunder.

Bayonet mount

A type of lens mount. The lens can be inserted into the lens mount and fixed in place quickly by rotating the mount lever.

Black balancing

To adjust a video camera while closing the lens iris completely so that the portions of the camera signal at the black level represent absolute black.

The pedestal level is adjusted so that the black levels of the R, G and B signals are equal. See "Pedestal level."

CCD

Abbreviation of Charge-Coupled Device. A semiconductor imaging device to convert input light levels into electrical charges, which are once stored and then output in the form of electrical voltage variations.

Color bar signal

A test signal to be displayed as vertical bars of different colors on a color video monitor. Used to check chrominance functions of television and video equipment, for example to check hue and saturation.

Color temperature

The temperature in Kelvins (K) to represent the color of a light source, determined by heating a perfectly black body until its color matches that of the light source. Color temperature is higher when the color is bluish and lower when reddish.

Color temperature conversion

Conversion of the color temperature of a light source to a particular reference color temperature (3200K for this camera, for example). See "Color temperature."

Field

One-half of a complete television or video camera picture (or frame) containing all of the odd or even scanning lines of the picture. See "Frame".

Frame

A single complete television or video camera picture consisting of two interlaced fields. See "Field."

Gen-lock

Abbreviation of Generator Lock. Locking the internal sync generator of a camera with an external reference sync signal.

* The DXC-930 can be replaced with the DXC-960MD.



Horizontal resolution

The capability of a camera to resolve detail in a horizontal direction. It is usually expressed as the number of vertical lines which can be distinguished on the monitor screen when shooting a test chart.

Iris

A diaphragm which controls the amount of light passing through the lens.

Pedestal level

Reference video level. Since signals close to the reference black level of the video signal contain noise, the pedestal level is set at about 10% above the blanking level.

Shutter speed

The length of time a shutter remains open. The faster the shutter speed, the less the shot image blurs but the darker it looks.

Subcarrier

The color information signal contained in a video signal. Its phase is for hue and its amplitude, color saturation.

VBS

Abbreviation of Video, Burst and Sync. A composite signal consisting of video signal, burst signal and sync signal.

Video gain

Amount of amplification for video signals, expressed in decibels (dB).

White balancing

In the light of a particular color temperature, to adjust the white levels of the R, G and B signals of a video camera so that any white subject shot in that light is reproduced as a truly white image. See "Color temperature."

SECTION 2

TECHNICAL INFORMATION

2-1. SWITCHES SETTING ON THE BOARD

AT-69 BOARD

- SW1 (OPE/ADJ)

When adjusting the electronic controls, the S1 switch on the AT-69 board set to "ADJ" position.

Normally set to "OPE" position.

- SW2 (PT/ZF)

Normally set to "ZF" position.

When using the special system, for example, PAN and TILT control by the Camera Control Unit, set to "PT" position.

CN-579 BOARD

- SW7 (SYNC/SG1)

Normally set to "SYNC" position.

SYNC: The synchronizing signal outputs from 9P D-SUB connector.

SG1: The shutter speed can be set in units of frame. Setting this mode is very effective for shooting a low luminance subject in a dark place. Because a video signal is stored during a frame period, a brighter video signal can be obtained.

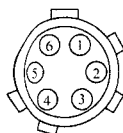
And the image processing or image analysis can be performed by synchronizing an external frame memory with the timing pulses and memorizing a video signal.

As a result, the pulse synchronized with the read timing pulse is output.

2-2. CONNECTOR/CABLE

2-2-1. Connector Input/Output Signals

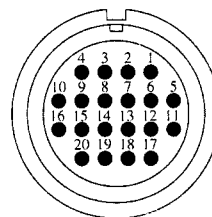
LENS (6P, FEMALE)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	NC	
2	NC	
3	UNREG (G)	
4	IRIS CLOSE	5 V (COMPULSORY AUTO)
5	IRIS CONT	2.6 V (CLOSE)~7.6 V (OPEN)
6	UNREG (+)	+12 V

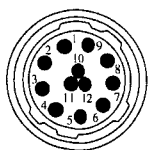
CCU, (20P MALE)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	UNREG OUT (+)	+12 V
2	UNREG OUT (G)	
3	VBS OUT (X)	1 V p-p
4	(G)	
5	R (X)	0.7 V p-p
6	R (G)	
7	G (X)	0.7 V p-p
8	G (G)	
9	B (X)	0.7 V p-p
10	B (G)	
11	Y (X)	1 V p-p
12	Y (G)	
13	C (X)	NTSC: 0.28 V p-p (BURST) PAL: 0.3 V p-p
14	C (G)	
15	GENLOCK (CCU) IN (X)	1 V p-p
16	GENLOCK (CCU) IN (G)	
17	SERIAL DATA IN (X)	
18	SERIAL DATA IN (G)	
19	SENSE (+)	
20	SENSE (-)	

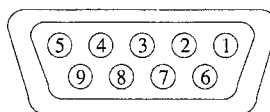
DC IN/REMOTE (12P, MALE)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	UNREG (G)	
2	UNREG (+)	+12 V
3	VBS (G)	
4	VBS (+)	
5	FOCUS CONT	0 to 5 V
6	IRIS CONT	0 to 5 V
7	CAM/REM CTL	CAM: 5 V REM: 0 V
8	ZOOM CONT	0 to 5 V
9	MODE	
10	UNREG (G)	
11	UNREG (+)	+12 V
12	IRIS A/M	AUTO: 5 V MANU: 0 V

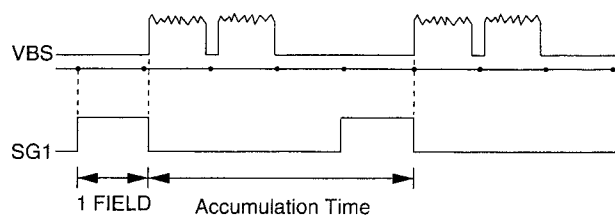
D-SUB (9P)



(EXT VIEW)

PIN NO.	SIGNAL	SPECIFICATION
1	VBS (G)	
2	R/G/B (G)	
3	R (X)	0.7 V p-p (75 ohms)
4	G (X)	0.7 V p-p (75 ohms)
5	B (X)	0.7 V p-p (75 ohms)
6	VBS/Y (X)	1 V p-p (75 ohms)
7	SYNC (X) *	2 V p-p (75 ohms)
8	SYNC (G)	
9	C (X) / —	

* SG1 output waveform at pin 7 is shown when SYNC switch SW7/CN board is set to SG1 (Output Timing Pulse) position. The signal is only output during long-time accumulation mode.



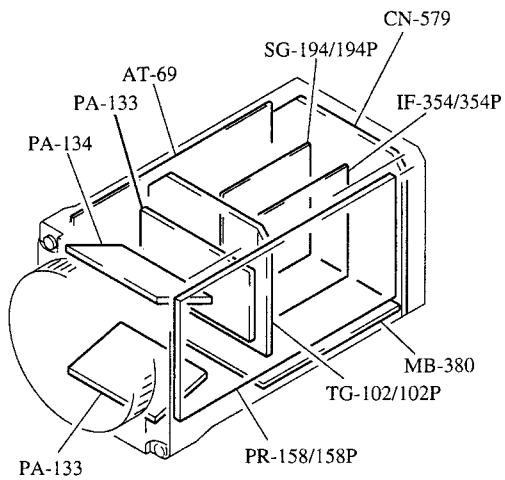
2-2-2. Connector

Connection made with the connector panels during installation or service, should be made with the connectors/complete cable assemblies specified in the following list, or equipment parts;

Connector function	Parts No. , and name of connector with cable
LENS (6P, FEMALE)	1-560-078-41 PLUG, 6P MALE
CCU (20P, MALE)	1-691-747-11 PLUG, 20P FEMALE
DC IN/REMOTE (12P, MALE)	1-562-356-11 PLUG, 12P FEMALE
D SUB (9P)	<ul style="list-style-type: none"> 1-566-354-11 PLUG, DSUB 9P MALE JAE DEU-9PF-F0 equality
VIDEO OUT GENLOCK (BNC)	1-560-069-11 PLUG, BNC

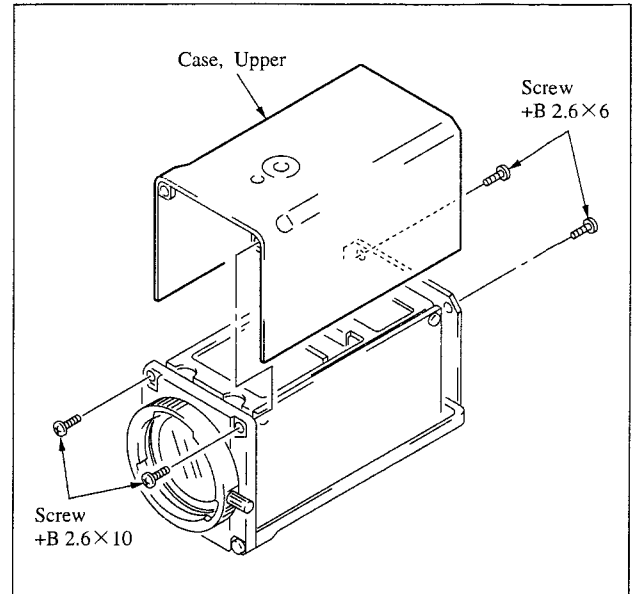
SECTION 3 SERVICE INFORMATION

3-1. BOARD LAYOUT

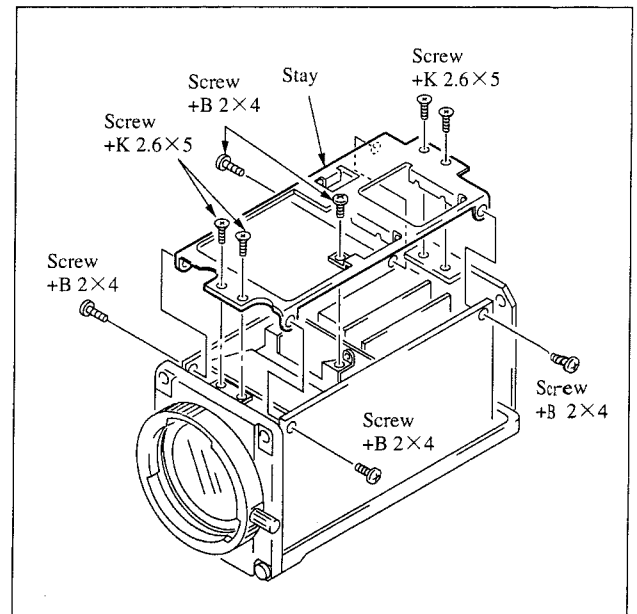


3-2. REMOVAL OF CABINET

1. Remove the four screws (+B 2.6×10, +B 2.6×6) and then remove the upper case.

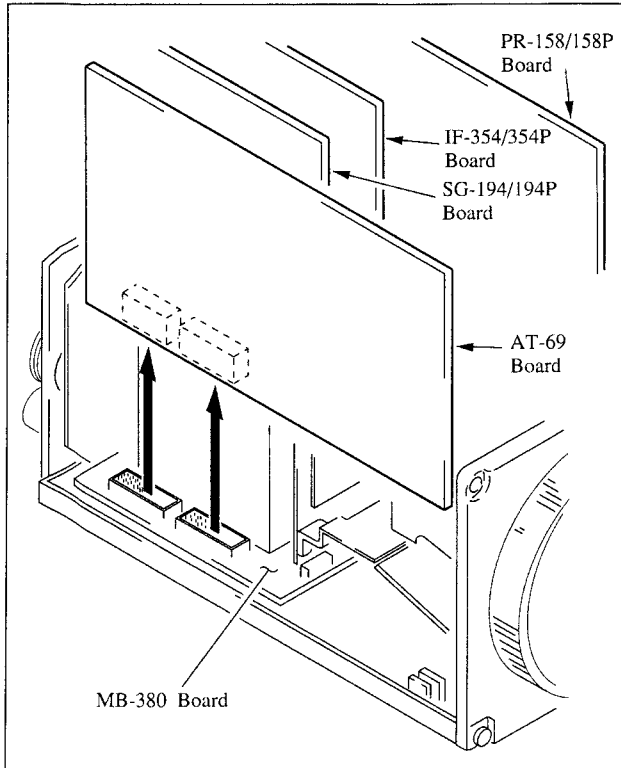


2. Remove the nine screws (+B 2×4, +K 2×4) and then remove the stay.

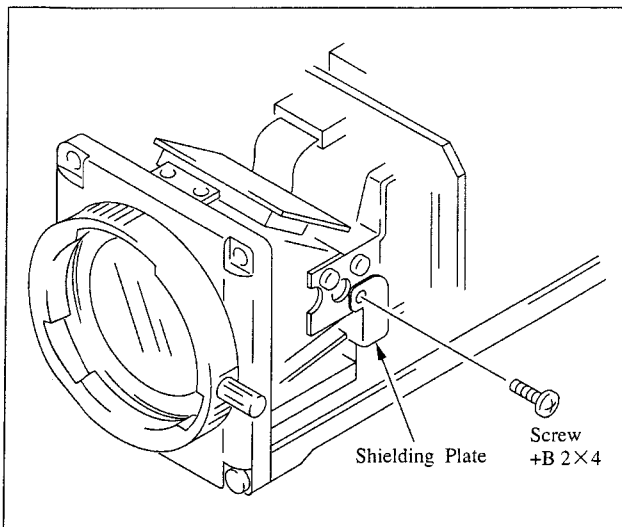


3-3. REMOVAL OF CCD BLOCK

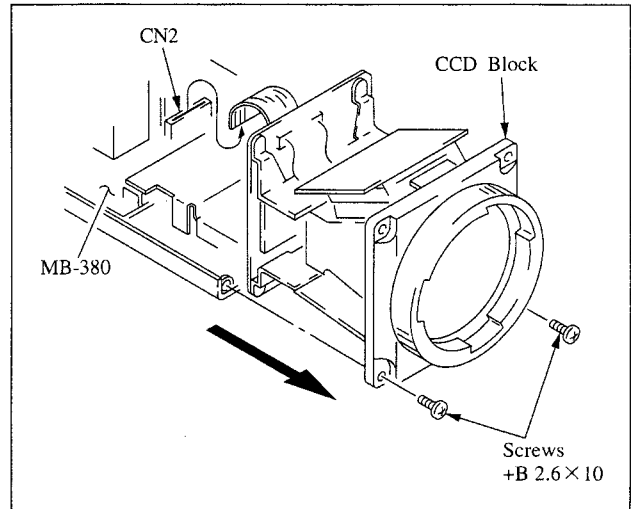
1. Remove the upper case and stay, referring to the Section 3-2 "REMOVAL OF CABINET".
2. Pull out the PR-158/158P, IF-354/IF-354P, SG-194/194P, and AT-69 boards from the MB-380 board.



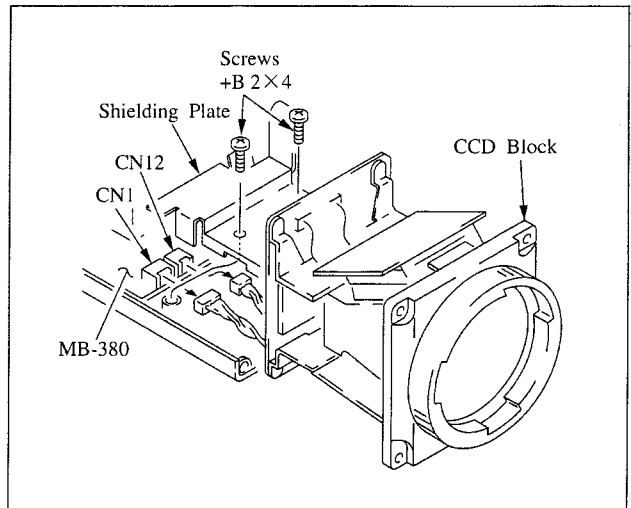
3. Remove the screw (+B 2×4).



4. Remove the two screws (+B 2.6×10) and pull out the CCD block from the main body.
5. Disconnect the flexible board from the CN2 on the MB-380 board.

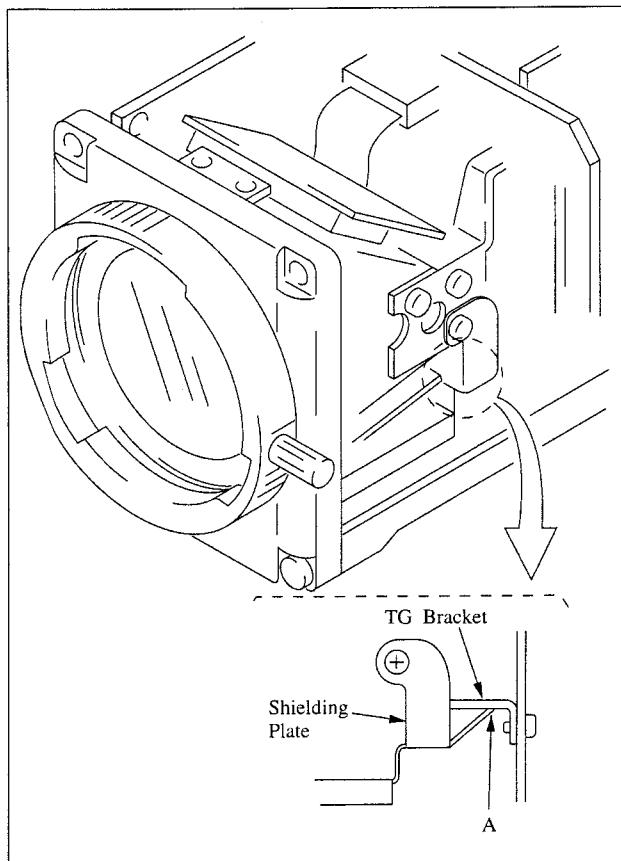


6. Remove the two screws (+B 2×4) and then remove the shielding plate. Disconnect the harness from the CN1 and CN12 on the MB-380 board, and then remove the CCD block.



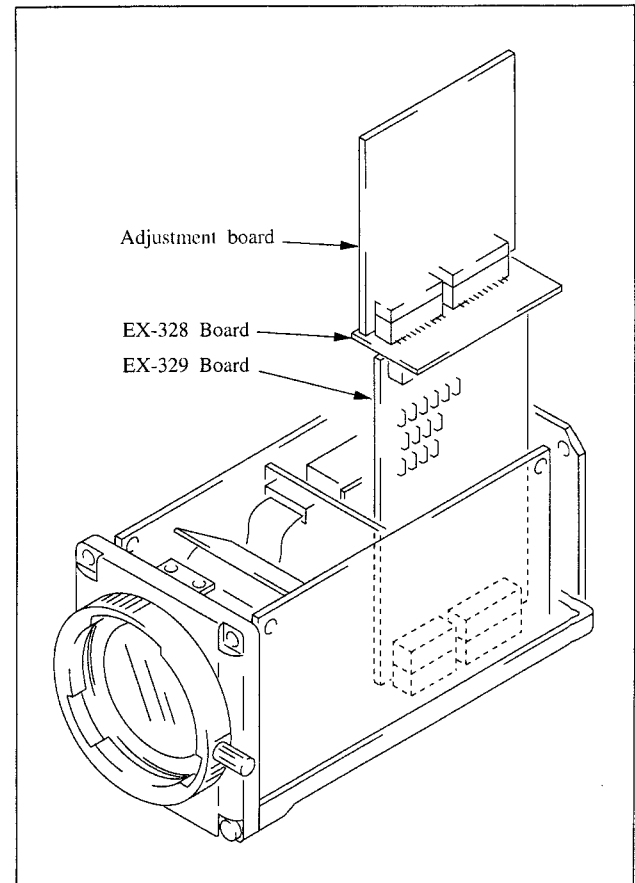
<Precautions on mounting the shielding plate>

When installing the shielding plate after replacement of the CCD block, confirm the TG bracket touches a portion "A" of the shielding plate.

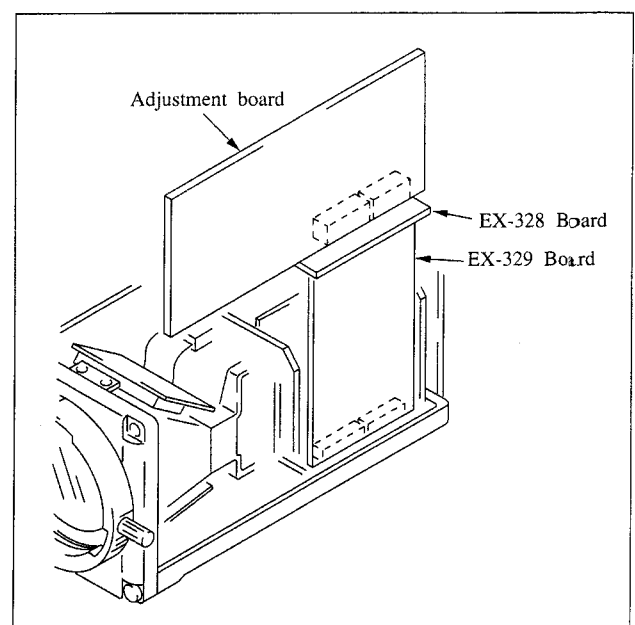


3-4. HOW TO USE AN EXTENSION BOARD

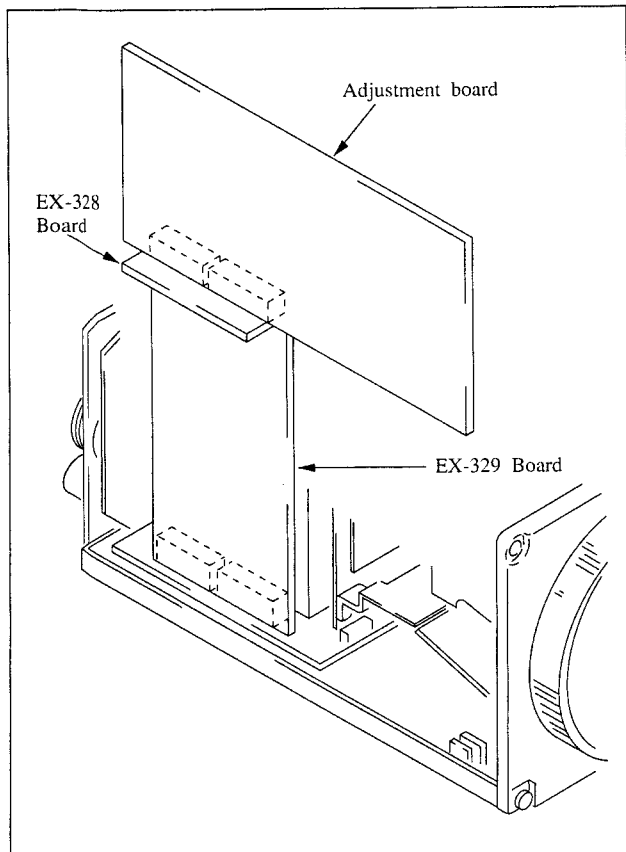
- In cases of the SG-194/194P board and the IF-354/354P board



- In cases of the PR-158/158P board



- In cases of the AT-69 board



SECTION 4

CIRCUIT OPERATION DESCRIPTION

4-1. PA-133 AND PA-134 BOARDS

The PA-133 and PA-134 boards have a CCD imager and converts incident light into an electric signal. They also extract a photo-electrically converted video signal by CDS.

From the viewpoint of the structure in channel B, these boards are classified into two types because the signal lines of the CCD driving clock from the TG-102/102P board and the power differ in the draw-out direction. However, the two boards are much the same in circuit configuration.

The PA-133 board is used in channels R and G, and the PA-134 board in channel B.

The light separated into the three primary colors via an optical system is sent to CCD imager IC1 (ICX038AT-1) and converted into an electric signal. Photosensors are arranged on the surface of a CCD chip. The number of photosensors in the horizontal direction is 811, and that in the vertical direction is 508. 411,988 photosensors are arranged in total. The number of effective pixels is 768 in the horizontal direction and 494 in the vertical direction (379,392 in total).

The incident light is converted into an electric charge corresponding to the brightness of light in a photosensor block. The converted charge is read from the photosensor block to the transfer block and sent to the output block. The transfer block is classified into a vertical transfer block and horizontal transfer block. As shown in Fig. 1, 811 vertical transfer blocks are arranged

in the vertical direction of the screen, and one horizontal transfer block in the horizontal direction of the screen (the uppermost part in Fig. 1). The charges converted in photosensors are transferred to the vertical transfer blocks adjacent to each photosensor for every field in the field read mode (every for frame in the frame read mode). The charges transferred to each vertical transfer block are vertically transferred in parallel using vertical transfer clocks V1 through V4 and sent sequentially to the horizontal transfer block. The horizontal transfer block transfers the charges horizontally using horizontal transfer clocks H1 and H2 (with frequency of 910 fH) and sends them to the output block. The charges are then output from pin 10 (CCD OUT) of IC1. The horizontal and vertical transfer clocks are sent from the TG-102/102P board.

The charge of an output signal from IC1 is converted into a voltage using a capacitor in the output block, then output. The output signal is input through buffer Q2 (emitter follower) to pins 2 and 3 of IC4 (IC3 for the PA-134 board) (CXA-1439M). IC4 is a CDS IC. Using a sampling pulse input to pins 5 (SHD) and 6 (SHP), IC4 performs the sample and hold operation and separates a signal. It then outputs a video signal from pin 8 as a CDS OUT signal. The output signal is input through A1 (FPC) and TG-102/102P board to the PR-158/158P board.

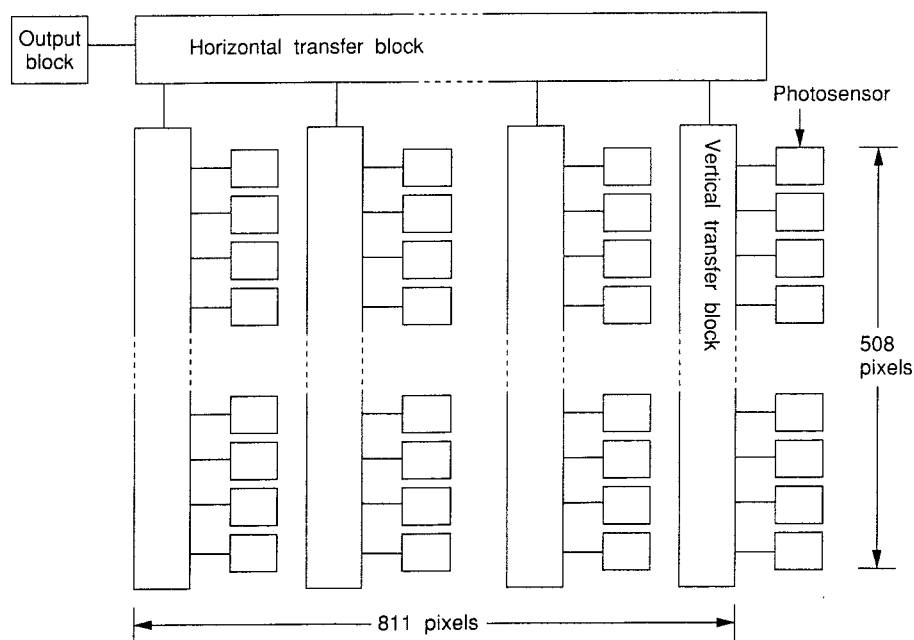


Fig. 1 Internal Structure of CCD

4-2. TG-102/102P BOARD

The TG-102/102P board consists of the circuits below.

- CCD drive timing signal generator
..... IC2 and IC7 (CXD1256AR)
- CCD vertical transfer clock driver
..... IC1, IC3 and IC6 (CXD1250N)
- CCD horizontal transfer clock driver (for channels R and B)
..... IC8 (MC74AC04MR)
- 910 f_H phase operation circuit
..... IC4 (SN74HC74ANS) and IC5 (SN74HC00ANS)
- LH1 negative power supply circuit
- RGL bias adjustment circuit
- V_{SUB} voltage supply circuit

(1) CCD drive timing signal generator

IC2 and IC7 (CXD1256AR) generate a clock, sample and hold pulse, and clamp pulse required for CCD driving by inputting a 1820 f_H clock and HD and VD pulses output from a sync signal generator. DXC-930/930P/960MD uses spatial offset technology for CCD adhesion. The phases of CCD driving clocks must be shifted 180 degrees between channels G, and R and B. Therefore, IC2 is used for channel G, and IC7 for channels R and B.

Each clock used in the DXC-930/930P/960MD is described below.

• CL:

910 f_H clock. Driven by IC4 and IC5 so that the phase is shifted 180 degrees between channels G, and R and B.

• H1 and H2:

Horizontal transfer block driving clock of CCD imager. Channel G is driven directly, and channels R and B drive IC8 as a driver.

• LH1:

Horizontal transfer block's final driving clock of CCD imager.

• XV1 to XV4, XSG1, and XSG1:

Vertical transfer block driving clock of CCD imager. These clocks are sent through drivers IC1, IC3, and IC6 to the PA-133 and PA-134 board.

• X_{SUB}:

Charge sweep pulse for electronic shutter control. This clock is sent through drivers IC1, IC3, and IC6 to the PA-133 and PA-134 board. The shutter speed is controlled by a microcomputer on the AT-69 board.

• RG: Reset gate pulse

• CLP1 and CLP2: Clamp pulse

• X_{SHP} and X_{SHD}:

Sample and hold pulse for signal separation

• WEN:

Write enable. Trigger pulse during low-speed shutter (long-time exposure).

(2) CCD vertical transfer clock driver

IC1, IC3, and IC6 (CXD1250N) drive XV1 through XV4, XSG1, XSG2, and X_{SUB} clocks for CCD vertical transfer block driving. The DXC-930/930P/960MD is a three-tube CCD camera, so it requires vertical transfer clock drivers for channels R, G, and B. Therefore, IC1 is used for channel G, IC3 for channel B, and IC6 for channel R.

(3) CCD horizontal transfer clock driver (For channels R and B)

IC8 (MC74AC04MR) is a CCD horizontal transfer clock driver for channels R and B.

In the DXC-930/930P/960MD, a horizontal transfer clock in channel G is directly driven by TG IC because of its single channel. To drive channels R and B directly by TG IC, IC8 (MC74AC04MR) is mounted as a driver circuit because of its higher load. The H1 output signal of IC7 is thus inverted using IC8 to produce an H2 signal. Similarly, the H2 output signal of IC7 is inverted using IC8 to produce an H1 signal.

(4) 910 f_H phase operation circuit

The 910 f_H phase operation circuit consists of IC4 (SN74HC74ANS) and IC5 (SN74HC00ANS). This circuit is required to operate two TG IC circuits with phase difference of 180 degrees because the spatial offset technology described previously is used. IC5 has the corresponding function. Channel G must be delayed (180 degrees) in phase with respect to channels R and B. IC4 has the function in this case.

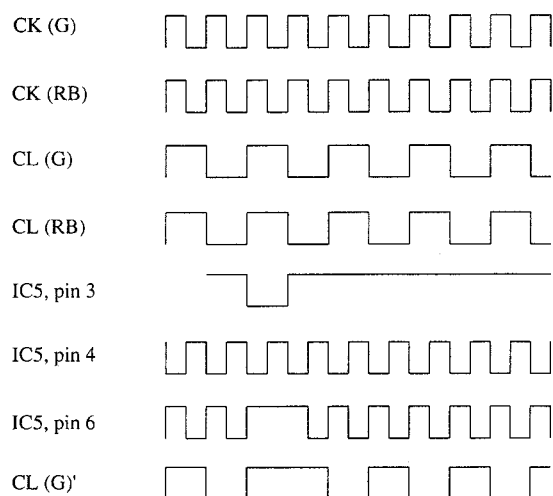
A 1820 f_H (\approx 28 MHz) clock with same phase is input to pins 64 (CK) of IC2 and IC7, and a 910 f_H (\approx 14 MHz) clock is output from pin 58 (CL). At that time, the CL clock in each channel is in-phase or opposite-phase. The CL clock is stabilized when it is in-phase or opposite-phase. As described previously, however, the CL clock in both channels must be opposite-phase. The CL clock must be forcibly set to the opposite phase by IC5 when it starts with in-phase during the power on sequence.

A CL (G) clock is input to pin 2 of IC5, and a CL (RB) clock is input to pin 1. The input clocks are then passed through a NAND gate. If the CL (G) and CL (RB) clocks are opposite-phase, the NAND gate output signal at pin 3 of IC5 is set high. If they are in-phase, a corresponding pulse is output. This pulse is input to pin 5 of IC5 and NANDed with the clock input to pin 4 of IC5. The output pulse at pin 6 of IC5 then becomes a dropout clock.

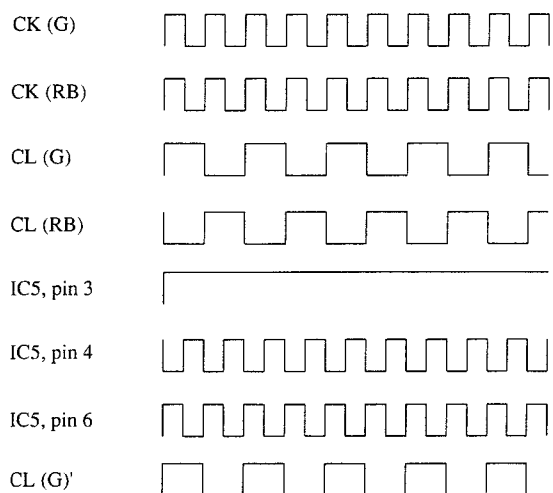
By using this pulse as a clock for channel G, the CL (G) phase is shifted 180 degrees with respect to the CL (RB) phase (opposite-phase). The output signal is set high even if the next CL (G) and CL (RB) clocks are NANDed. Therefore, dropout pulse KP is not output and stabilized in this state. The CL (G) phase must be also delayed with respect to the CL (RB) phase at all times. This operation is performed using IC4.

Timing Chart

1 When CL (G) and CL (RB) clocks are in-phase



2 When CL (G) and CL (RB) clocks are opposite-phase



(5) LH1 negative power supply circuit

Pin 21 (VEE) of CXD1256AR is a -4 V power pin for LH1. Q4 and Q9 produce a -4 V power from the -9 V power and supply it to this pin.

(6) RGL bias adjustment circuit

The RGL bias adjustment circuit consisting of Q3, Q7, and Q8 adjusts the bias of a reset gate (RG) pulse. The RGL value varies depending on CCD imagers. This circuit thus adjusts the RG bias to the optimum value.

(7) Vsub voltage supply circuit

A circuit primarily consisting of Q1 and Q2, a circuit primarily consisting of Q5 and Q6, and a circuit primarily consisting of Q10 and Q11 supply a specified voltage to the overflow drains of CCD imagers for channels G, B, and R. The Q1 and Q2 pair, Q5 and Q6 pair, and Q10 and Q11 pair are regulators that use the Vsub control voltage as a reference voltage.

The Vsub control voltage can be changed in the range of approximately 1.6 to 5.0 V using RV1, RV3, and RV6. It is set so that the overflow drain of the CCD imager becomes a specified voltage. This voltage value varies depending on the CCD imagers. Adjustment is thus required.

In the shutter mode, the charge storage time can be controlled by adding a charge sweep pulse corresponding to the shutter speed to this DC bias. The period in which no charge sweep pulse is output in the shutter mode is defined as exposure time. The exposure time corresponds to the shutter speed. Therefore, this pulse is not output in the normal mode (shutter OFF).

4-3. PR-158/158P BOARD

The PR-158/158P board consists of the circuits below.

- Input amplifier
- Processing circuit (IC8: μ PC2372)
- Color-bar generator
- Chroma signal generator
- Y signal and aperture signal circuits

(1) Input amplifier

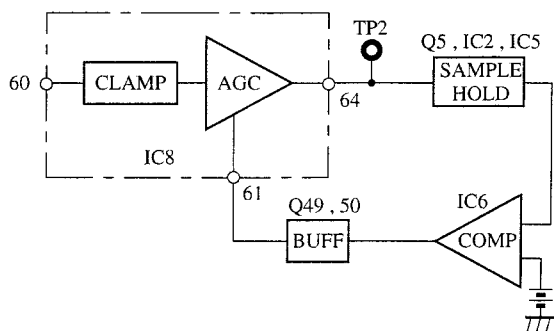
Since the circuit configuration in R, G, and B channels is almost the same, only the G channel is described below.

Trap filter FL2 eliminates a 14-MHz video signal component from channel B. The 300 mV voltage at TP7 is used as an input reference voltage.

An inverting amplifier consists of Q23, Q24, Q17, and Q18. The reference pulse from the AT board is mixed using Q18. Channels R and B select the gain during color temperature conversion by turning on or off Q8 and Q38. In the C TEMP mode of the camera, Q8 is turned on and Q38 is turned off when the color temperature is 3200 K. Q8 is turned off and Q38 is turned on when it is 5600 K. Q82 and Q83 clip it at 1 Vp-p when a high-luminance signal is input. The luminance level can be adjusted using an electronic volume control.

(2) Processing circuit

① GAIN: STEP (Fixed gain mode)



A negative video signal is input from pin 60 of IC8, clamped, then amplified in an AGC amplifier. The amplified signal (330 mV reference voltage at TP2) is input to a sample and hold circuit consisting of Q5, IC2, and IC5. The input signal processes the level of a reference pulse input during vertical blanking period as a DC value. The signal is then compared in IC6 and sent through buffers Q49 and Q50 to pin 61 of IC8. In this case, the gain (including a temperature characteristic) is made constant at all times.

In a gain of +18 dB for 0 dB, the reference pulse input from the AT board is input with the level reduced to 1/8. When the gain is set from 0 dB to +18 dB, the reference pulse decreases and the DC output increases in comparator IC6. The gain in IC8 then increases.

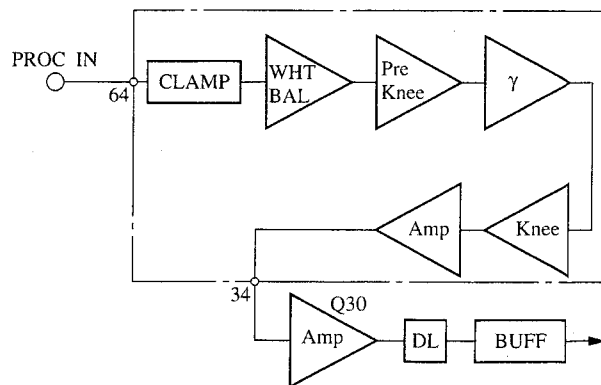
To track the gain in channel G, the values in channels R and B are compared with the hold value from pins 55 and 70 of IC8, with the sample and hold value of a G-channel reference pulse as reference. The comparison result is input to IC8. Limiters Q49 (pin 3) and Q50 (pin 1) determine the minimum and maximum gains.

② GAIN: AGC

The signals output from TP2, TP3, and TP5 are passed through buffers Q19, Q4, and Q40 and mixed in Q25. The mixed signals are sent to clamping circuit Q28 and output to TP10. The output signal is then integrated in R65 and C44, compared in IC6, and input to IC8.

For the STEP (fixed gain mode) and AGC selection, the DC value of a reference pulse and the integrated value of an RGB mix signal are selected using IC3 and IC4.

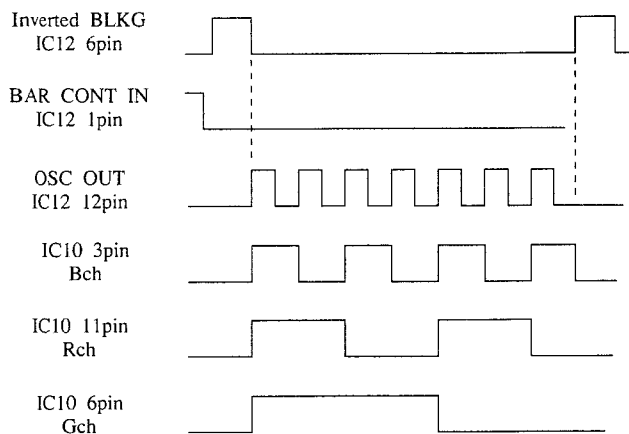
③ Processing circuit



The circuit configuration in channel G is described below.

The signal that is input to IC8 again is clamped and passed through a WHT BAL amplifier. The signal is then passed through a pre knee circuit, γ circuit, and knee circuit and output from pin 34. The gain in this stage is approximately three times the normal. A signal of 1 Vp-p is output when a signal of 330 mVp-p is input. This gain is determined by changing the WHT BAL amplifier using an electronic volume control. A color-bar signal that is amplified in Q30 and output through a delay line to Q32 as a G OUT signal is mixed using Q30.

(3) Color-bar generator



A BLKG pulse is input to pin 3 (4, 5) of IC12, inverted, and input to pin 2 of IC12. A monostable multivibrator is activated when a BAR CONT signal (at pin 1 of IC12) is low. An OSC OUT signal is then input to pin 11 of IC11, and a pulse shown in the figure above is output from IC10. A character signal is also input to IC10, and each signal in channels R, G, and B is mixed in Q13, Q30, and Q46.

(4) Chroma signal generator

A color-difference signal and Y signal are input from the R, G, and B OUT pins (TP6, TP9, and TP13) to IC8 via a matrix resistor (consisting of R136 through R154) and output from pins 22, 18, and 14.

An R-Y (I) signal is inverted in Q56, passed through a lowpass filter consisting of R190, L12, C85, and C86, and amplified in Q60. The amplified signal is input through clamping circuit Q61 to IC14 (subcarrier modulation IC). Similarly, a B-Y (Q) signal is input from Q64, amplified in Q68, and input through clamping circuit Q69 to IC14.

A BF signal is added to each signal, and the burst phase is determined by the signal level. A chroma signal generated in IC14 is passed through bandpass filter FL4 and amplified in Q54 and Q55. The amplified signal is output to pin 13 of connector CN2 and input to the IF board.

(5) Y signal and aperture signal circuits

A Y signal generated in IC8 is output from pin 14 of IC8, amplified in Q77 and Q75, and input to pin 42 of IC17. The signal level is determined by the DC control (electronic volume control) at pin 30 of IC17. A DTL signal (input to pin 40 of IC17) and aperture signal in this Y signal are mixed. A Y OUT signal is then output from pin 22 of IC17, passed through three delay lines (100 m x 3) from Q84, and amplified in Q80. As a result, a signal of approximately 500 mVp-p is output from pin 15 of connector CN2 and input to the IF board. Delay lines DL6 through DL8 are used to align the phase of Y and chroma signals.

The R- and G-channel signals from Q12 and Q29 are mixed in Q70, passed through delay line DL5, and amplified in Q65. The amplified signals are input through buffer Q63 and clamping circuit Q74 to delay line DL4. The signal passed through delay line DL4 and the reflected signal are calculated to produce an aperture signal in IC17.

A DTL signal generated on the IF board is input from pin 1 of connector CN1. The input signal is sent to pin 8 of IC8, amplified in IC8, and output from pin 77 of IC8. The signal is then input through buffer Q52 to pin 40 of IC17 and mixed with a Y signal. DTL and aperture signals are mixed in Q53 to produce an RGB mix signal. The resultant signal is output to pin 17 of connector CN2.

(6) D/A converter

The data signal from the AT board is digital-to-analog converted in IC13, IC16, and IC18 to produce various control signals in IC8 and IC17.

4-4. IF-354/354P BOARD

The IF-354/354P board primarily consists of the circuits below.

- Detail signal circuit
- Video signal driver circuit
- Sync control circuit

(1) Detail signal circuit

The detail signal circuit generates H and V detail signals. It determines the mix ratio so that H : V is 1 to 1 using RV3. This circuit then sends the signals to the PR-158/158P board. For the H detail signal, G IE IN and R IE IN signals are adjusted and mixed using RV2 so that the moire in a detail signal is minimum. The resultant signal is differentiated two times using a two-stage filter to produce the H detail signal. For the V detail signal, a signal obtained when a G IE IN signal is 1H-delayed by CX15504M is produced. The delay time of the signal is finely adjusted using a filter after it is amplified. The 1H-delayed signal is mixed with the inverted former G IE IN signal in Q14 to produce the V detail signal. RV1 is adjusted so that signals other than a detail component are eliminated using RV1.

(2) Video signal driver circuit

The detail signal returned from the PR-158/158P board is resistance-mixed with the R, G, and B OUT signals (1.0 V when 100%) from the PR-158/158P board. In channel G, the sync signal (adjusted to 300 mV (in 75-ohm termination) during output from the camera) whose level is adjusted using RV7 is mixed. The signal is then level-adjusted using RV4, RV5, and RV6 (adjusted to 1.4 V when 100%) and sent to the CN board by a driver circuit.

Y and C signals are sent through the driver circuit to the CN board, respectively. The Y and C signals passed through the driver circuit are resistance-mixed to produce a VBS signal and output through the driver circuit to the CN board.

(3) Sync control circuit

The sync control circuit selects a sync signal by the SYNC CONT voltage from the CN board and outputs it by a driver circuit.

4-5. AT-69 BOARD

<Outline>

The AT-69 board consists of the circuits below.

- Auto white balance
- Auto black balance
- Auto iris
- Electronic control
- Character generator
- Zoom and focus control
- Others

The AT-69 board performs various system controls such as an auto white balance, auto black balance, CCD iris, electronic shutter control, auto iris control, and AGL by using a microcomputer. This board reads the six switches on the rear panel and displays the state on the screen as a character to perform all the user controls. It also interfaces with the camera control unit (CCU) in series and controls the electronic control.

Eight-bit microcomputer IC20 (HD63B05Y0E53F: Hitachi) primarily performs the system controls above. The HD63B05Y0 is a CMOS eight-bit single chip microcomputer in which an 8K-byte ROM is masked. Fig. 1 shows the block diagram of the microcomputer.

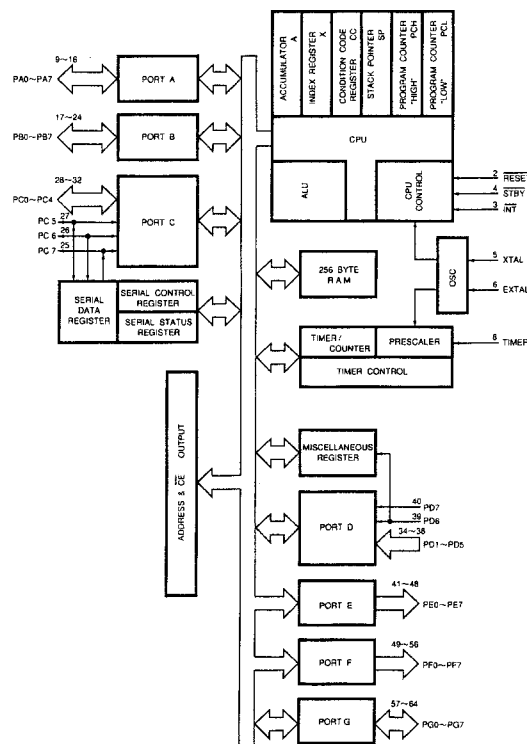


Fig. 1 Block Diagram of Microcomputer

The major features of this microcomputer are as follows:

- 256-byte RAM
- 32 I/O ports
- Seven input ports
- Sixteen output ports
- Two internal timers
- Internal serial interface circuit
- Interrupts:
 - External port 2, timer 2, serial port 2, and software 1
- Minimum instruction time: 1 μ sec

Table 1 shows the pin name and function of this microcomputer.

EEPROM IC21 (M6M80011AFP) is connected to this micro-computer. The auto white control data, auto black control data, internal control data, user control data displayed on the screen, and electronic control data are memorized in the EEPROM.

The M6M80011AFP is a 1024-bit CMOS EEPROM that enables an electric erasure and electric program. Fig. 2 shows the block diagram of the EEPROM.

The major features of the EEPROM are as follows:

- 5 V single power
- Clock sync serial input/output
- Three-port control (minimum) (Can connect CS and RESET, and D1 and D0.)
- Internal sequential controller
- Number of erasure and write times: 100000
- Data storage: 10 years

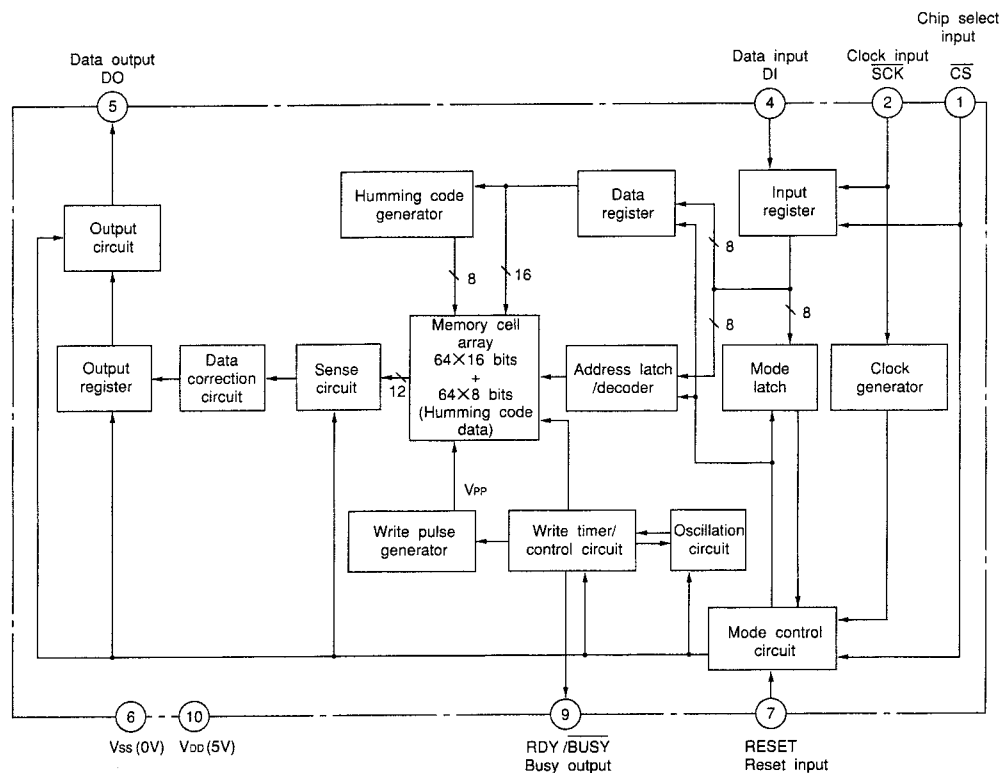


Fig. 2 Block Diagram of EEPROM

No.	PORT NAME	I/O	FUNCTION & REMARKS
1	TIMER	I	TIMER INTERRUPT CLOCK IN (VD)
2	PA7	O	D/A CONV. CS-5
3	PA6	O	D/A CONV. CS-4
4	PA5	O	D/A CONV. CS-3
5	PA4	O	D/A CONV. CS-2
6	PA3	O	D/A CONV. CS-1
7	PA2	O	SHUTTER STROBE
8	PA1	O	SERIAL DATA TO D/A, SHUTTER, CHARA GEN.
9	PA0	O	SERIAL CLOCK TO D/A, SHUTTER, CHARA GEN.
10	PB7	I	OPE/ADJ SELECT, SET=OPE
11	PB6	I	NTSC/PAL SELECT, SET=PAL
12	PB5	I	A/D CONV. IN
13	PB4	O	CHARA STROBE
14	PB3	O	CHARA CS
15	PB2	I	EEPROM BUSY
16	PB1	O	EEPROM CS
17	PB0	I	EEPROM DATA IN
18	PC7	O	LADDER R2
19	PC6	O	LADDER R3
20	PC5	O	LADDER R4
21	PC4	O	LADDER R5
22	PC3	O	LADDER R6
23	PC2	O	LADDER R7
24	PC1	O	LADDER R8
25	PC0	O	LADDER R9
26	Vcc	I	DC 5V IN
27	PD1	I	
28	PD2	I	PRESET INPUT FOR ADJ
29	PD3	I	0/18dB SELECT, CLR=0dB, SET=18dB
30	PD4	I	18dB CONT INT/EXT, SET=INT, CLR=EXT
31	PD5	I	GEN LOCK INT/EXT IN
32	PD6	I	BLKG IN
33	PD7	I	VD IN
34	PE0	O	S/H CHARGE RESET SET=CHARGE RESET
35	PE1	O	S/H TIME SELECT, SET=PEAK (WHT) S/H

No.	PORT NAME	I/O	FUNCTION & REMARKS
36	PE2	O	S/H AREA SELECT 1
37	PE3	O	S/H AREA SELECT 2
38	PE4	O	S/H AREA SELECT 3
39	PE5	O	S/H CHANNEL SELECT 1
40	PE6	O	S/H CHANNEL SELECT 2
41	PE7	O	S/H CHANNEL SELECT 3
42	PF0	O	A/D SELECT 1
43	PF1	O	A/D SELECT 2
44	PF2	O	CCU ID (ZOOM & FOCUS) SET=CCU MODE
45	PF3	O	IRIS CLOSE OUT CLR=IRIS CLOSE, SET=OPEN
46	PF4	O	CABLE COMP. FOR GEN LOCK, SET=ON, CLR=OFF
47	PF5	O	AGC/STEP GAIN SELECT, SET=AGC, CLR=STEP
48	PF6	O	
49	PF7	O	SERIAL DATA OUT TO CCU
50	PG7	O	
51	PG6	O	IRIS AUTO/MANU OUT, SET=MANU, CLR=AUTO
52	PG5	O	VBS Y/C SELECT, SET=VBS, CLR=Y/C
53	PG4	O	C. TEMP, SET=5600K, CLR=3200K
54	PG3	O	SC 0/180 CONT., SET=180, CLR=0
55	PG2	O	SYNC ON GREEN, SET=ON, CLR=OFF
56	PG1	O	BARS, SET=ON, CLR=OFF
57	PG0	O	FLD/FRM, SET=FRAME MODE, CLR=FIELD MODE
58	Vss	I	GND IN
59	RESET	I	SYSTEM RESET PORT
60	INT	I	SERIAL INTERRUPT
61	STBY	I	STANBY IN
62	XTAL	I	4MHz OSC
63	EXTAL	I	4MHz OSC
64	NUM	I	

Table 1 Pin Name and Function

(1) Auto white balance circuit

The white balance is established by making the level of R and B signals the same as that of a G signal when a white object is shot.

The R, G, and B signals output from the PR-158/158P board are input to generate R-G and B-G signals. Assume that the peak value of a Y signal produced when the R, G, and B signals are mixed is a white level. The R-G and B-G signals are sampled at the peak of the Y signal to obtain an error signal in the white level. The error signal is A/D converted and input to the microcomputer as 8-bit data. The microcomputer calculates a gain control signal from this error signal and outputs it. The output signal is input to the D/A converter to control the R and B gains on the PR-158/158P board by an analog output signal. The white balance is then established.

Actually, the level of the peak value is checked before white balance operation to judge whether the input level is proper. The white balance operation is initiated after the input level is judged to be proper.

① Operation of input value level check

The signal input to the base (G-channel) of Q3 is passed through buffer Q3 and clamped in Q5 using an HD pulse. The clamped signal is passed through buffer Q2, then sampled and held in IC9 using a Y peak signal. The Y signal from the PR-158/158P board is input to the base of Q12. The input signal is sent through buffer Q12 to clamping circuit Q14 and input to pin 3 of IC15 after a negative unwanted signal is sliced in NAM circuit Q13.

IC15 (2/3) cuts the superimposed reference pulse from the PR-158 board using a blanking signal. After that, the peak level is held in Q20 and D4, and a Y peak pulse is obtained in Q17. The Y peak pulse input to pin 15 of IC14 is GATEed in the detection frame shown in Fig. 3 and output from pin 3 of IC14. The pulse is then used as a sample and hold pulse of IC9. The detection frame is obtained by controlling an IC using a microcomputer. The G signal that is sampled and held using a Y peak signal is sent through analog switch IC5, IC7, and Q4 to pin 5 of IC11. The reference voltage (REF DC) (approximately 0.6 V) obtained at the emitter of Q15 is sent through IC5, IC7, and Q4 to pin 2 of IC11. IC5 is switched using a microcomputer. A G-REF DC signal is obtained at pin 10 of IC11, amplified in IC11, then input to pin 14 of IC13. Analog switch IC13 selects an A/D conversion input signal. The input signal at pin 14 of IC13 is input to pin 13 of IC11. The resultant signal is A/D converted using a sequential A/D converter consisting of comparator IC11 (4/4) and microcomputer IC20 so as to load data into the microcomputer. Limiters D3 and D2 limit the amplitude of a signal so that it does not change in the range exceeding 0 to 5 V.

The G-REF DC signal loaded into a microcomputer is compared with the data that is written in advance in EEPROM. The comparison becomes invalid when the output level is less than 40 IRE (PAL : 300 mV). The white balance operation is initiated when the output level is more than 40 IRE (PAL : 300 mV).

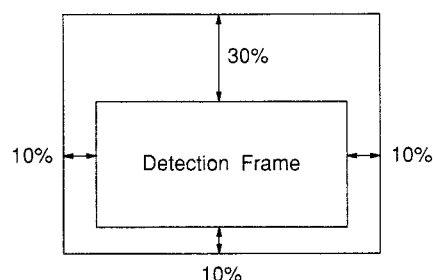


Fig. 3 White Peak Detection Frame

② White balance operation

As described in step 1, R, G, and B signals are simultaneously sampled and held in IC9. Error signals G-G, R-G, and B-G can be obtained at pin 10 of IC11 when IC5 and IC2 are switched using a microcomputer. The G-G signal is memorized in the microcomputer as a reference voltage. The R-G and B-G signals are also memorized in the microcomputer as an 8-bit digital signal. The G-G and R-G error voltages memorized in the microcomputer are compared. If the difference is within one bit (the least significant one bit of an 8-bit signal), the white balance is judged to be established. If the white balance is established, the microcomputer proceeds to the next step without correction. If not, that is, Δ exceeds "1" ($\Delta > 1$) in the expression below, the R gain is changed and the gain of the R signal is adjusted to establish the white balance.

$$(G-G) - (R-G) = \Delta$$

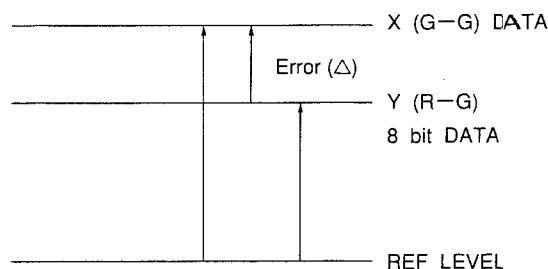


Fig. 4 Error Voltage

The R gain signal is serial data. It is sent from the microcomputer to D/A converter IC16 on the PR-158/158P board and converted into an analog voltage. The resultant signal is output to the gain control circuit. At that time, the microcomputer changes an 8-bit digital signal to 00H through FFH by the Δ value.

However, the operation becomes invalid when the difference between the R-G and G-G signals is great and when the white balance is not established even if "00H" or "FFH" is output. The R gain signal is repeatedly changed until the difference between the R-G and G-G signals becomes within one bit. If the difference is within one bit, the operation is judged to be satisfactory. This operation is done three times again. When it is judged to be satisfactory four times in all, the four-times operation data is compared and arranged in the descending order. The mean value of the two data items in the middle is used as the final R gain data. The R and B gains are corrected by one sample-and-hold operation. Channel B is also controlled in the same manner as channel R (Fig. 5). After the white balance operation is completed, the R and B gain data are written in the EEPROM and messages "WHITE:OK" and "WHITE:NG" are output on the monitor. The auto white balance operation is then completed.

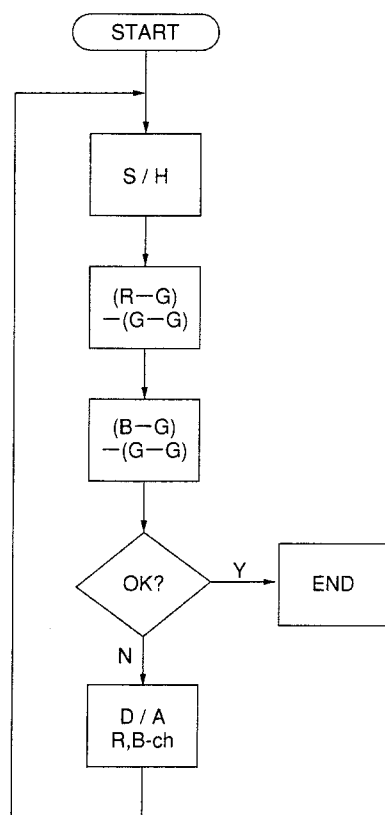


Fig. 5 White Balance Operation

(2) Auto black balance

The auto black balance operation is performed in the procedure below.

- 1) The iris of a lens is closed forcibly. The light amount is detected to confirm that the iris is closed electrically.
- 2) The black tracking operation is performed to stabilize it so that the output black level (pedestal level) does not fluctuate when the gain select switch is set from 0 dB to 18 dB with the lens closed. The auto black tracking is performed using an R signal. Next, it is performed using a B signal, then G signal.
- 3) The black balance operation is performed. The black levels in all the channels of R, B, and G signals are made same. The black levels of G-G and R-G signals are compared with the lens closed. If an error occurs, the black level of the R signal is corrected. Next, the black levels of G-G and B-G signals are compared. If an error occurs, the black level of the B signal is corrected. As a result, the black level between channels is established.

The auto black operation is completed when the three operations above are completed.

① Lens iris close operation

To establish auto black balance, the external light must be shut off. Therefore, the iris must be closed when establishing the black balance. Pin 45 of microcomputer IC20 is kept low if the black balance switch is set to ON when an auto iris lens is used. A high-level signal is then output from Q22 and sent to the lens as an iris close signal. Whether the lens iris is completely closed at that time is judged by the G-REF DC signal detection. The microcomputer selects so that IC5 obtains an R-REF DC signal. In this case, the absolute value of the G-REF DC signal is not detected to judge whether the lens iris is closed. By using an electronic shutter and judging from the relative value, precise detection can be done not depending on a change in temperature and a change with the passage of time. As shown in Fig. 6, the shutter speed is first set to 1/60 (sec) to detect a G-REF DC signal, then 1/1000 (sec) for detection. If no change appears in the detection value, the lens iris can be closed.

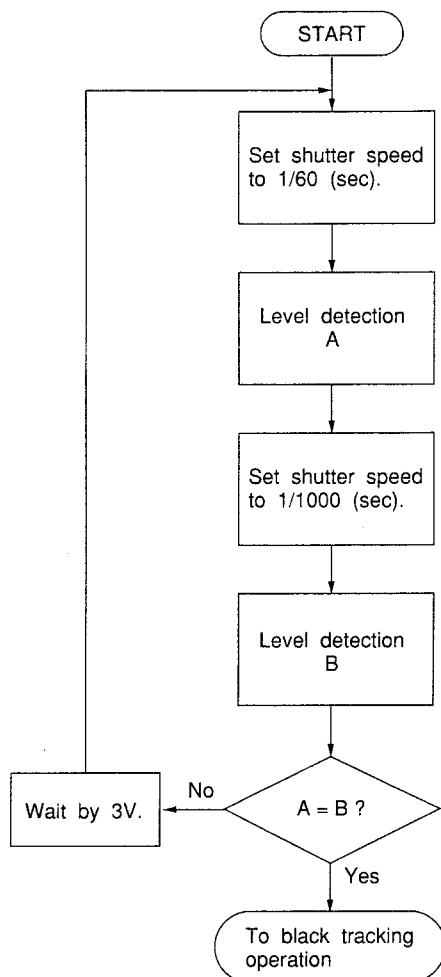


Fig. 6 Iris Close Check

② Black tracking operation

During black tracking operation, the pedestal levels of R, G, and B signals are stabilized so that they do not fluctuate when the gain select switch is set from 0 to 18 dB and vice versa with the iris closed. IC20 is switched by a microcomputer after confirming that the iris is closed. An R-REF DC signal, G-REF DC signal, and B-REF DC signal can be then obtained sequentially. Data is first A/D converted with the gain set to 0 dB. The A/D converted data is memorized in the microcomputer. Next, the gain is set to 18 dB. The data is then memorized.

A black tracking control signal is produced by the difference of the data when the gain select switch is set to 0 dB and 18 dB. The signal is then sent to D/A converter IC12 by serial data to produce an analog output signal. The resultant signal is mixed with a black tracking preset voltage when it is input to IC10. A blacking tracking pulse is then obtained from IC10 using an HD pulse. The pulse is amplified in IC8 and sent to the PR-158/158P board. This operation is repeatedly performed when the gain select switch is set from 0 to 18 dB and vice versa. The difference of the data is controlled so that it is within 11 bits.

③ Black balance operation

During black balance operation, the black level of a G signal is sequentially compared with the black levels of R and B signals with the iris closed. G-R and G-B signals are then obtained. R and B pedestal signals are output to the PR-158/158P board to adjust the pedestal levels of the R, G, and B signals so that the difference between the G-R and G-B signals is zero ("0"). A reference pulse is first produced by a G-G signal, and an R-G signal is A/D converted. The difference between the G-G and R-G signals is D/A converted to produce an R pedestal signal and output to the PR-158/158P board. A B-G signal is also treated in the same manner as the above. These operations are the same as the white balance operation except that the iris is closed or opened.

(3) Alarm displays

During auto white balance and auto black balance operations, the alarm displays below are output on the monitor.

Display	Description
WHITE : OK	Indicates that the white balance was established.
WHITE : NG	Displayed when the white balance is not established for a fixed time period. The circuit, lighting condition, or adjustment is defective.
WHITE : NG LEVEL : LOW	Displayed when the video output level is too low (less than about 40 IRE (PAL : 300 mV)).
WHITE : NG LEVEL : ???	Displayed when the video output level does not change at all during white balance operation.
WHITE : NG C. TEMP : HI	Displayed when the color temperature is too high. Change the lighting condition or color temperature.
WHITE : NG C. TEMP : LOW	Displayed when the color temperature is too low. Change the lighting condition or color temperature.
BLACK : OK	Indicates that the black balance was established.
BLACK : NG	Displayed when the black balance is not established. The circuit or adjustment is defective.
BLACK : NG IRIS : CLOSE?	Displayed when light goes in the lens.

Table 2 Alarm Displays

(4) Character generator

IC22 (μ PD6142G) generates a character on the monitor. The data for the display is input from a microcomputer. Each alarm, user control status, adjustment data are displayed. Fig. 7 shows the block diagram of the character generator.

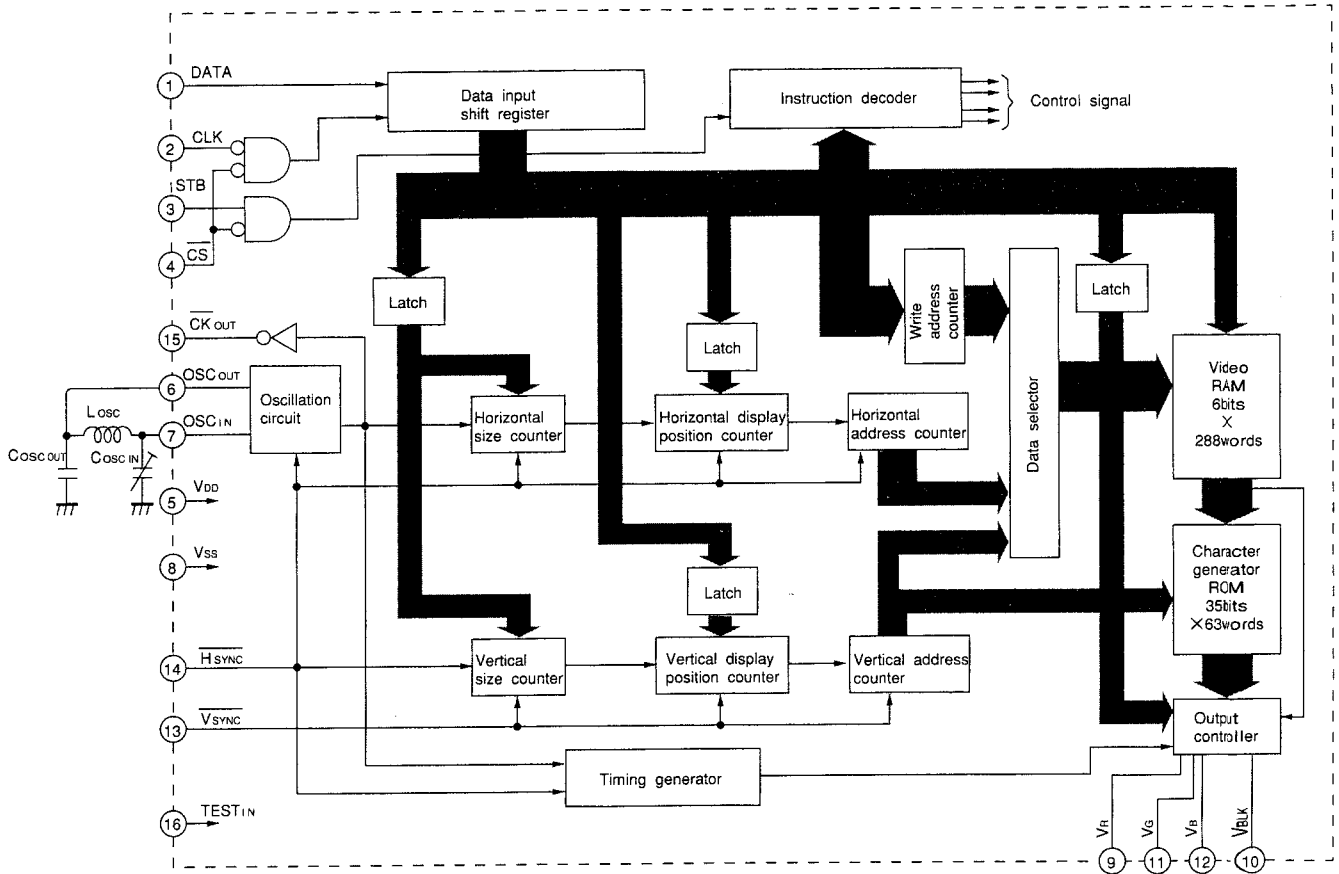


Fig. 7 Block Diagram of Character Generator

(5) Electronic control and adjustment

Electronic control are used instead of semi-fixed controls for the adjustment and user control. ADJ NO. and DATA are displayed when switch SW1 is set to "ADJ". During adjustment, an analog voltage is output to D/A converters IC12 and IC23, and data is simultaneously written in EEPROM IC21.

Table 3 shows the electronic control list.

Adjust NO.	Data Name	Remarks	D/A OUT	BOARD
1	R. Black Tracking		IC12 ⑱ pin	AT-69
2	G. Black Tracking		IC12 ②	AT-69
3	B. Black Tracking		IC12 ③	AT-69
4		Not using		
5	Y Level		IC13 ⑱	PR-158/P
6	Sync Level		IC13 ⑱	PR-158/P
7	Set Up Level		IC13 ②	PR-158/P
8	Enable White.Clip		IC13 ③	PR-158/P
9	AGC Max Level		IC13 ④	PR-158/P
10	AGC Min Level		IC13 ⑤	PR-158/P
11	*AGC / Step	AGC Refference Level Setting	IC13 ⑥	PR-158/P
12	*Step / AGC	Step Refference Level Setting	IC13 ⑦	PR-158/P
13	Master WHT. Bal		IC16 ⑱	PR-158/P
14	R WHT. Bal		IC16 ②	PR-158/P
15	B WHT. Bal		IC16 ③	PR-158/P
16	R. Pre Knee		IC16 ⑥	PR-158/P
17	G. Pre Knee		C16 ⑦	PR-158/P
18	B. Pre Knee		IC16 ⑧	PR-158/P
19	R. Pedestal		IC16 ⑨	PR-158/P

Adjust NO.	Data Name	Remarks	D/A OUT	BOARD
20	G. Pedestal		IC16 ⑫	PR-158/P
21	B. Pedestal		IC16 ⑬	PR-158/P
22	Gamma		IC18 ③	PR-158/P
23	Knee		IC18 ④	PR-158/P
24	White. Clip		IC18 ⑤	PR-158/P
25	Aparture Level		IC18 ⑥	PR-158/P
26	Aparture Crisp.		IC18 ⑦	PR-158/P
27	DTL-MAX		IC18 ⑧	PR-158/P
28	DTL Level		IC18 ⑨	PR-158/P
29	DTL Crisp.		IC18 ⑬	PR-158/P
30	Iris Refference		IC23 ④	AT-69
31	SC. Phase		IC23 ⑤	AT-69
32	CCD-Iris Level		*	AT-69 (IC20)
33	Spare EVR for AT	Not using		
34	R AGC clip	Rch clip level at AGC input	IC13 ⑨	PR-158/P
35	B AGC clip	Bch clip level at AGC input	IC13 ⑫	PR-158/P
36				
37	Peak min.	White balance min. data	*	AT-69 (IC20)
38	Iris close	Iris close margin data	*	AT-69 (IC20)

* : Constant in IC20 / AT-69

Table 3 Electronic control list

(6) User control

As shown in Fig. 8, the user control state such as a gain control, detail control, and shutter control is displayed on the monitor to control data using six switches on the rear panel. Voltage values are set to the six switches, respectively. These voltage values are A/D converted, then read by a microcomputer.

The input voltage at pin 2 of IC13 is passed through IC13 and A/D converted by IC11 and the microcomputer to judge which switch was pressed.

■	GAIN	STEP
	STEP	07DB
	C. TEMP	3200K
	WHT. BAL	AUTO
	CCD IRIS	OFF
	SHUTTER	OFF
	STEP	1 / 10000
	MANU	255
— MENU —		

BARS	ON
M. PED	+12
DTL	-22
H. PHASE	128
SC	140
0/180	180
GAMMA	ON
G. SYNC	ON
FLD/FRM	FLD
D-SUB	VBS

Fig. 8 User Control

(7) Gain control circuit

The gain control is primarily performed on the PR-158/158P board. A reference pulse used for the gain control is controlled in this circuit. The reference pulse is shown in Fig. 9. The size of the reference pulse is controlled in an automatic gain control (AGC) and fixed gain by the microcomputer. The voltage at pin 12 of D/A converter IC12 is switched to 5 V in IC3 to produce a pulse. The pulse is then output from the emitter of Q1 to the PR-158/158P board. The switching pulse in IC3 is produced by ANDing HD and CLP1 pulses in IC19 (TC4S81f).

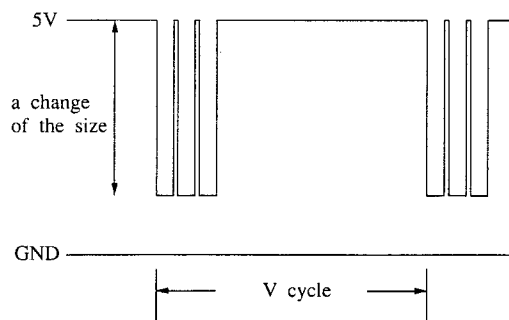


Fig. 9 Reference Pulse

(8) CCD iris

The CCD iris keeps the video output level constant by changing the shutter speed of the CCD.

The Y signal from the PR-158/158P board is input to the base of Q12. The input signal is clamped in Q14, and the unwanted portion is sliced in NAM circuit Q13. The resultant signal is input to pin 1 of IC15 (1/3), where a reference pulse is cut. The signal is then passed through buffers Q24 and Q25 and rectified in R88 and C27. A Y REF DC signal is produced by switching IC5. The Y REF DC signal is A/D converted, and data is loaded into the microcomputer.

This data is compared with the data that is memorized in advance in the EEPROM. The shutter speed is calculated so that the difference is zero ("0"). The calculated result is sent to the shutter speed control circuit on the TG-102/102P board by serial data. The video output level is controlled so that it is always constant.

(9) Auto iris

The Y signal input to the base of Q12 is sent to clamping circuit Q14. The unwanted portion is eliminated in NAM circuit Q13. A reference pulse is cut in IC15 (1/3). The resultant signal is input through buffer Q24 to pin 5 of IC1 (1/4). The input signal is buffered in IC1 (1/4), rectified in R8 and C5, then input to pin 2 of IC1 (2/4). In IC1 (2/4), the voltage output from pin 4 of D/A converter IC23 is input to pin 3. IC1 (2/4) also forms a loop so that the rectified value input to pin 2 is constant.

(10) Zoom and focus circuits

The zoom and focus can be controlled when a remote control unit (RM-930) and camera control unit (CCU) are connected.

① When remote control unit is connected

A ZOOM control voltage is input from the remote control unit to pin 2 of switch SW2. When SW2 is set to "ZF", the ZOOM control voltage is input to pin 2 of IC16 (1/3). Pin 10 of IC16 (1/3) is low when the remote control unit is connected. Therefore, the ZOOM control voltage is input to pin 3 of IC24 (1/2), amplified, then output from pin 1. The voltage changes in the range of 2 to 8 V. A FOCUS control voltage is also the same as the ZOOM control voltage.

② When camera control unit (CCU) is connected

Pin 10 of IC16 (1/3) is set high when the CCU is connected. The ZOOM control voltage sent from the CCU by serial data is sent to D/A converter IC23 and output from pin 6. The output signal is then input through IC16 to pin 3 of IC24 (1/2). The ZOOM control voltage from pin 1 changes in the range of approximately 2 to 8 V. A FOCUS control voltage is also the same as the ZOOM control voltage.

When switch SW2 is set to "PT" during CCU connection, the PAN and TILT control voltages from the CCU are output from pins 8 and 9 of IC23 and sent through SW2 to pins 21 and 19 of connector CN2.

4-6. SG-194/194P BOARD

<OUTLINE>

The SG-194/194P board generates various sync signals. This board automatically sets the external sync mode when a genlock (VBS) signal is input from the outside, then outputs a sync signal synchronized with the genlock signal.

• Internal sync

For the NTSC system, the DC clock controlled by RV1 is sent through IC6 (CXD1216M) to buffer Q5 to control VCO CP1 and set a clock frequency. The 28 MHz clock is sent to the TG-102/102P board, frequency-divided by one half, then sent back. The clock is then input to pin 26 of IC10 (CXD1217M). Various pulses are then output with this clock as reference.

For the PAL system, the DC clock controlled by RV1 controls CP2. A 4 fsc signal is input to pin 10 of IC10. This signal is sent to phase comparator IC10 and output from pin 24 (H COM OUT). The output signal is then sent through IC6 to a low-pass filter (consisting of R37, R41, C22, and C24) and buffer Q5 to control VCO CP1.

• External sync (VBS genlock)

An EXT VBS signal is input from pins 4 and 2 of connector CN1. The EXT VBS signal is input from pin 4 of CN1 when it is input to the camera. The EXT VBS signal is input from pin 2 of CN1 when it is input to the camera control unit (CCU). The camera side has priority in this case. The VBS signal input to pin 4 of connector CN1 is input to pin 5 of IC1 (1/2) and amplified in IC1 (1/2). After that, the lower edge of a sync signal in the VBS signal is clamped to ground using C4 and D3. When the VBS signal is input to hold the DC component at the upper edge of a sync signal using C9, pin 11 of IC2 (2/3) is set low. The VBS signal is then supplied to the sync separation circuit.

The VBS signal input to pin 2 of connector CN1 is terminated in R4 and sent to pin 1 of IC1 (1/3). Pin 10 of IC2 (1/3) is set high when the extension distance of the camera and CCU is 200 m or 300 m. A cable compensation circuit consisting of C12, R14, C11, R13, C10, and R12 is then activated.

Q2 and Q1 is a floating amplifier that cancels the hum occurring during cable extension. The VBS signal is then sent through buffer Q3 to the sync separation circuit. The burst component in the VBS signal is passed through bandpass filter consisting of L3 and C15, amplified in Q4, and converted into an amplitude of 0 to 5 V using comparator IC5. R25 slightly contains hysteresis to prevent noise. The burst component output from pin 6 of IC5 is input to pin 17 of IC6. The burst component is compared with an internal subcarrier in IC6. The comparison output is sent to pin 1 of IC6 to pin 2 of IC7, where the VD period is extracted (because the V BLKG period of the burst component is lost, nothing to be compared exists, and an error occurs in the output of the comparator). The resultant signal is passed through a low-pass filter consisting of R35, R36, C20, and C21, amplified in operational amplifier IC8 (1/2), then input to the control voltage input pin of CP2 (4 fsc VCO), where an oscillated 4 fsc signal is input to sync signal generator IC10. As a result, an internal subcarrier is locked to the external subcarrier (burst). The subcarrier generated in IC10 is sent to the encoder using an SC phase shifter consisting of IC12 and IC13. The subcarrier from IC10 is input to pin 9 of IC13 (2/2) and output from pin 12 with the pulse width

changed. This pulse width can be changed by the external DC control. In this case, a feedback is established by IC12 to compensate for the temperature characteristic. The output signal is input to pin 2 of IC13, then output with the duty cycle set to 50 %. The $0/\pi$ selection can be performed by selecting Q and Q output signals using analog switch IC3 (1/3). The subcarrier phase can be continuously changed by changing the pulse width above. The phase of the encoder output subcarrier then coincides with that of the external subcarrier.

The sync signal in the VBS signal is amplified in Q10 through Q12 and sent through a low-pass filter consisting of R94 and C63 to sync separation circuit IC4. The sync signal is then input to pin 17 of IC6. The FH pulse output from pin 27 of IC10 is input to monostable multivibrator IC11 (1/2). The pulse width can be then changed by the external DC control. In this case, a feedback is established by IC8 (2/2) to compensate for the temperature characteristic. The pulse is then input to pin 15 of IC6 and compared with the external sync signal above. An output signal at pin 9 is passed through a low-pass filter consisting of R37, R41, C22, and C24 to control CP1 (VCO). As a result, the phases of an internal H pulse and external sync signal are kept constant. These phases can coincide with each other by controlling the pulse width of H phase shifter IC11 (1/2).

• Generation of CLP5

A CLP5 pulse is used to clamp the AGC circuit on the PR-158/158P board. It has the phase relation shown in Fig. 1.

An HD pulse at pin 8 of IC10 is integrated in R84 and C56, then input to IC14. The input pulse is inverted in IC14 and integrated in R85 and C57. The pulse width is controlled by monostable multivibrator IC11 (2/2). The resultant pulse is output from pin 6.

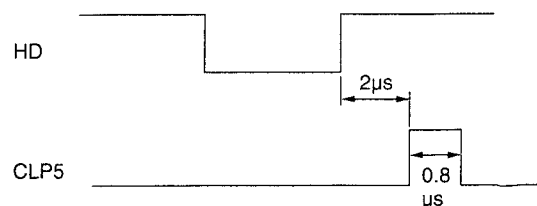
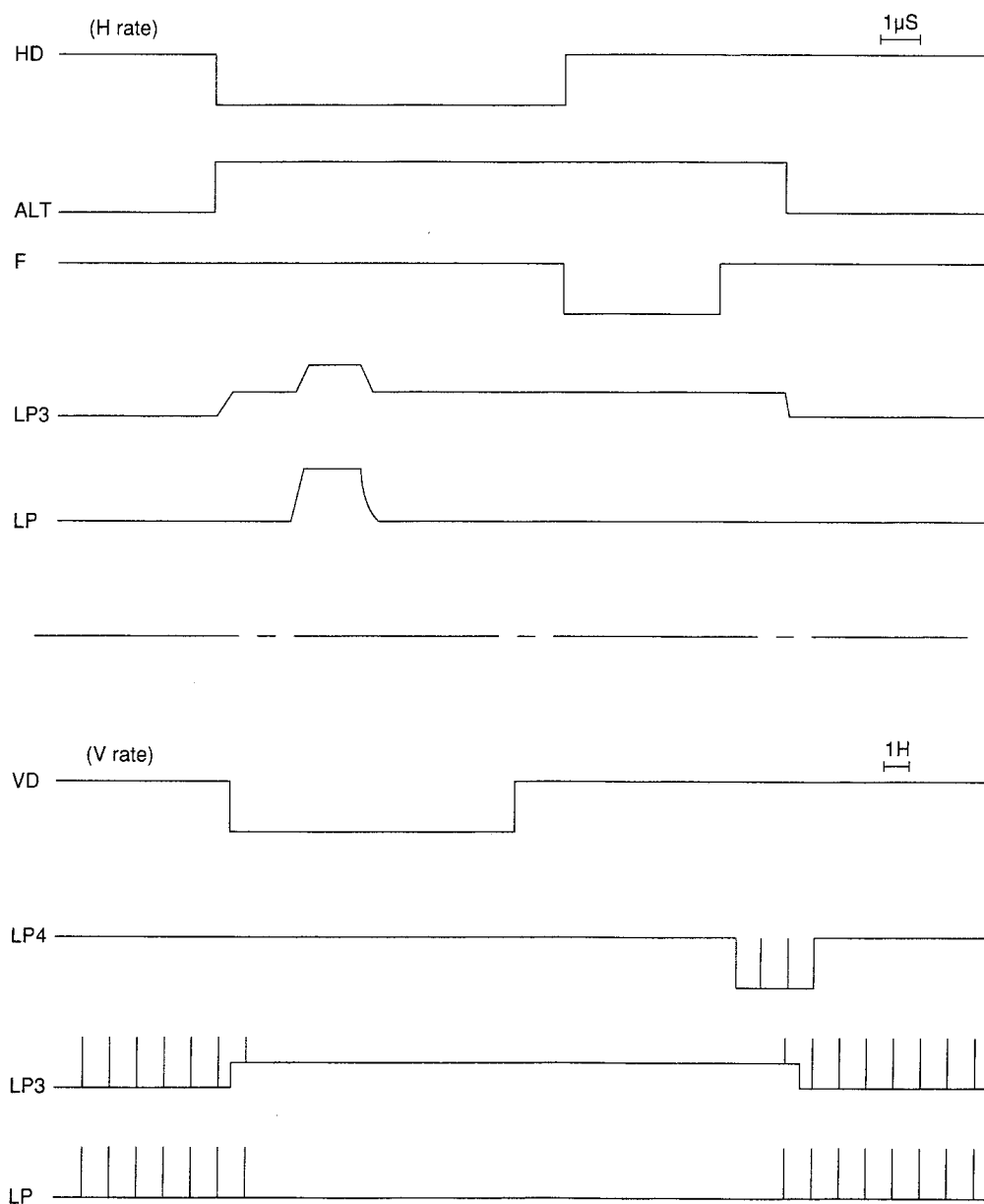


Fig. 1 CLP5 (NTSC)

4-7. MB-380 BOARD

The MB-380 board primarily consists of a DC/DC converter that supplies the DC power required for each block and a circuit that generates seven pulses from a pulse on the SG board and sends them to the PR-158/158P board. Fig. 1 shows the timing chart for each output pulse. C9, R3, R4, R5, and R6 are a noise elimination filter when operating the lens using RM-930.

Timing Chart of DXC-930 (NTSC)



4-8. CN-579/580 BOARD

The CN-579/580 board consists of an input and output connectors, control voltage circuit, and video signal driver circuit. The CN-579 board differs from the CN-580 board in that it has the number of pins required for connection with CCU-M3, CCU-M7, and RM-930.

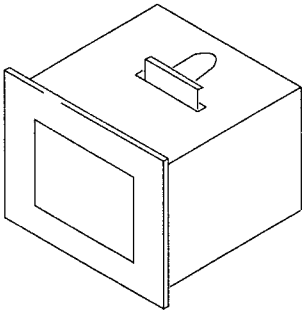
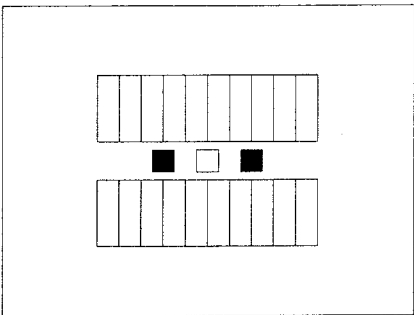
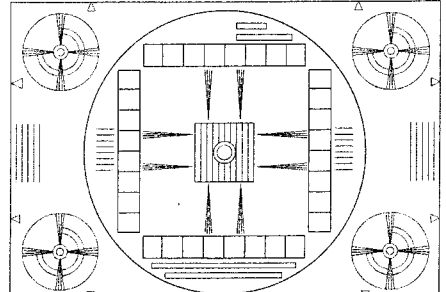
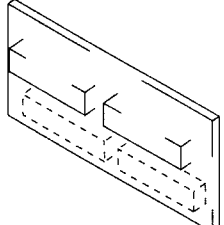
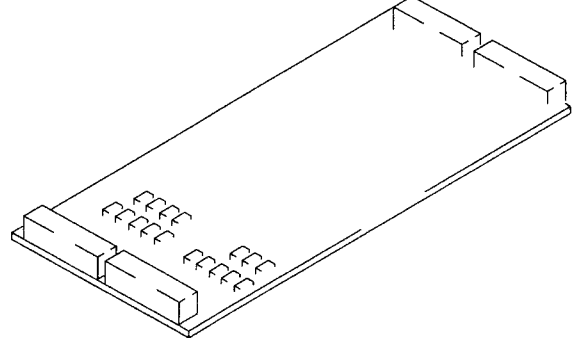
The VBS signal of a 9-pin DSUB connector (CN5) and the Y/C signal output are selected using an analog switch. A sync signal is selected using switch SW7.

The SENSE (+) and (-) pins on the CN-579 board output a reference DC voltage (approximately 2.5 when a proper voltage is supplied to the camera) to fix the supply voltage sent from CCU to DXC-930 when they are connected to the CCU.

SECTION 5 ALIGNMENT

5-1. PREPARATION

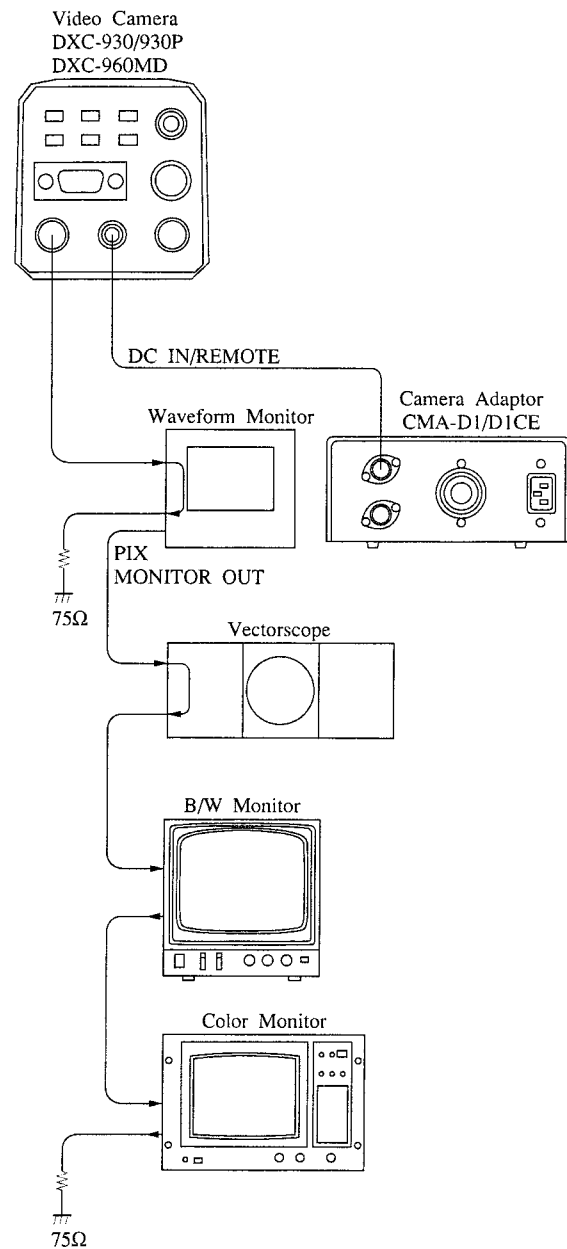
5-1-1. Fixtures and Equipments Required

J-6029-140-B	Pattern Box PTB-500
<ul style="list-style-type: none"> • Light source for test charts AC90 ~ 240V 	
A-6026-130-B	Grayscale Chart
<ul style="list-style-type: none"> • For video level adjustment, etc. 	
J-6026-100-A	Resolution Chart
	
J-6097-110-A	Extension board EX-328
	
J-6097-120-A	Extension board EX-329
	

Commercial equipment and fixture

- Dual Trace Oscilloscope
- Vectorscope
- Waveform Monitor
- Frequency Counter
- Digital Voltmeter
- B/W Monitor
- Color Monitor
- Bayonet type lens with manual iris function
 - 1/2-inch lens
 - 2/3-inch lens + LO-32BMT lens mount adaptor

5-1-2. Connection



5-1-3. How to adjust an electronic control

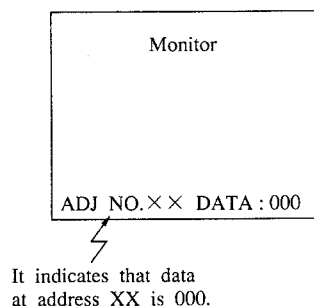
The DXC-930/DXC-930P/DXC-960MD/XC-009/XC-009P has the electronic controls in addition to the controls that are mounted on the each board for adjustment.

How to adjust an electronic control is shown below.

1. Adjustment mode for an electronic control

Set the SW1/AT-69 board to ADJ position, and the adjustment mode for an electronic control is put. The address and the data of an electronic control are displayed on the monitor screen.

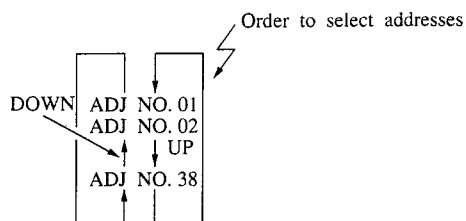
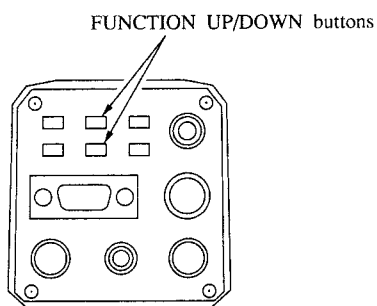
This message means that the address is "ADJ NO. XX" and the data is "000".



2. Address Selection

The address that is displayed on the monitor will go up (or down) by pressing the FUNCTION UP (or DOWN) button on the rear panel. When pressing the FUNCTION UP (or DOWN) button continuously, displayed address will change in succession.

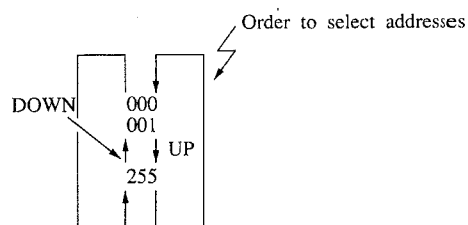
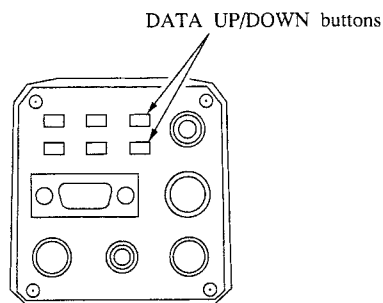
Order of address selection



3. Data Selection (Electronic control adjustment)

The data (adjustment value) that is displayed on the monitor will go up (or down) by pressing the DATA UP (or DOWN) button on the rear panel. By this operation, the adjustment value will change in the same manner that when an ordinary level control is turned.

Order of data selection



5-1-4. Switch Setting Before Adjustment

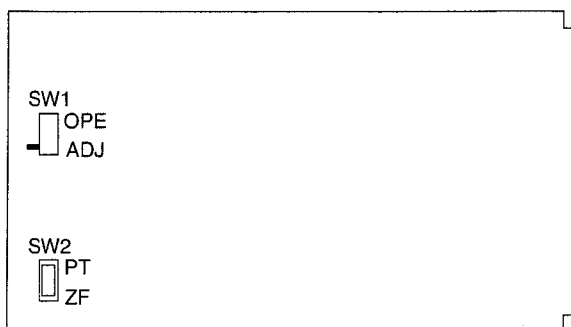
Menu Screen:

GAIN: STEP
STEP 0 dB
C. STEP: 3200K
WHT. BAL: MANU
R. GAIN +00
B. GAIN +00
CCD IRIS: OFF
SHUTTER: OFF

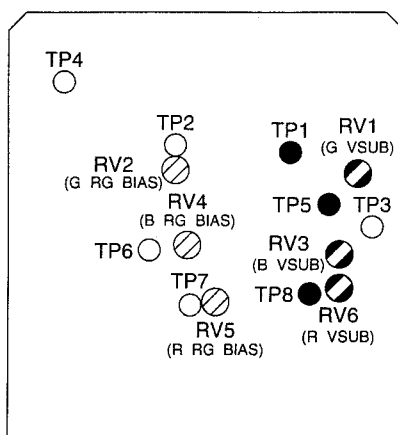
AT-69 board:

SW1 (ADJ/OPE): ADJ

Note: After the adjustment, set the SW1 (ADJ/OPE) /AT-69 board to OPE position.



AT-69 BOARD (B SIDE)



TG-102/102P BOARD (A SIDE)

5-2. ADJUSTMENT

5-2-1. G/R/B V Substrate Voltage Adjustment

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.

After replacement is completed, adjust voltage at each test point for the measured value.

If the voltage can not be adjusted to the measured value, adjust for following specifications.

Equipment: Digital voltmeter

Preparation:

- Disconnect the PR-158/158P, IF-354/354P and AT-69 board from the camera unit.

Adjustment Procedure:

- Perform adjustment in order of G, R and B channels as shown below.

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.

After replacement is completed, adjust voltage at each test point for the measured value.

If the voltage can not be adjusted to the measured value, adjust for following specifications.

TG-102/102P board

	Test point (GND: TP3)	Adjusting point	Specification
G-ch	TP1	RV1	12.0±0.1 V dc
R-ch	TP8	RV6	
B-ch	TP5	RV3	

Note: After the adjustment, return the PR-158/158P, IF-354/354P and AT-69 board to their normal position.

5-2-2. G/R/B PGL Voltage Adjustment

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.
After replacement is completed, adjust voltage at each test point for the measured value.
If the voltage can not be adjusted to the measured value, adjust for following specifications.

Equipment: Digital voltmeter

Preparation:

- Disconnect the PR-158/158P, IF-354/354P and AT-69 board from the camera unit.

Adjustment Procedure:

- Perform adjustment in order of G, R and B channels as shown below.

Note: Before replacing any controls on TG-102/102P board or TG-102/102P board itself, be sure to measure voltage at following test points in advance.
After replacement is completed, adjust voltage at each test point for the measured value.
If the voltage can not be adjusted to the measured value, adjust for following specifications.

TG-102/102P board

	Test point (GND: TP4)	Adjusting point	Specification
G-ch	TP2	RV2	2.0±0.1 V dc
R-ch	TP7	RV5	
B-ch	TP6	RV4	

Note: After the adjustment, return the PR-158/158P, IF-354/354P and AT-69 board to their normal position.

5-2-3. Subcarrier Frequency Adjustment

Equipment: Frequency counter

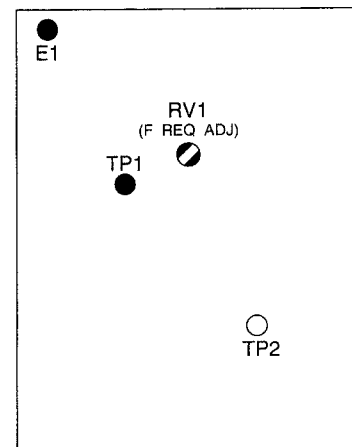
To be extended: SG-194/194P board

Test point: TP1 (GND: E1) /SG-194 (194P) board

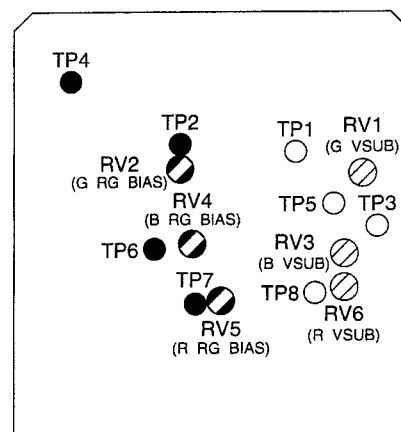
Adj. point: RV1/SG-194 (194P) board

Spec.: 3,579,545 ± 10 Hz (For NTSC)

4,433,619 ± 10 Hz (For PAL)



SG-194 /194P BOARD (B SIDE)



TG-102/102P BOARD (A SIDE)

5-2-4. Color Bars Adjustment

Equipment: Oscilloscope, Waveform monitor

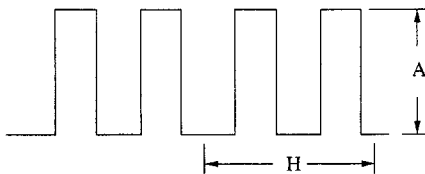
To be extended: PR-158/158P board

Preparation:

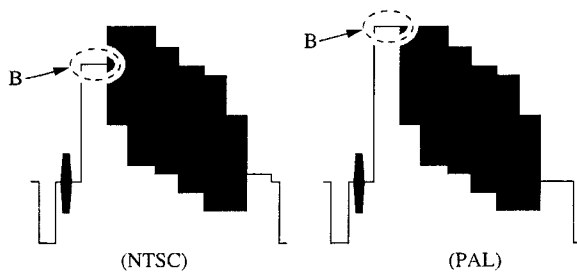
• DISPLAY/BARS button → "BARS"

Adjustment Procedure:

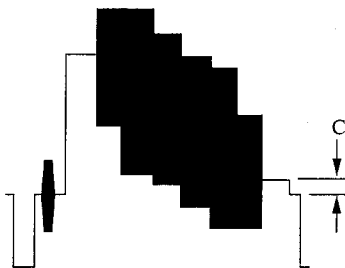
1. Adjust RV14/PR board so that the video level "A" at TP9 (GND: E1) on the PR board is 750 ± 10 mV p-p (PAL; 1.0 ± 0.01 V p-p).



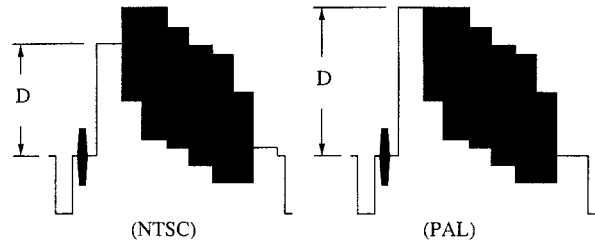
2. Adjust RV15 and RV13/PR board so that the carrier leakage "B" at the gray level portion (PAL; white level portion) of VIDEO OUT waveform is minimum.



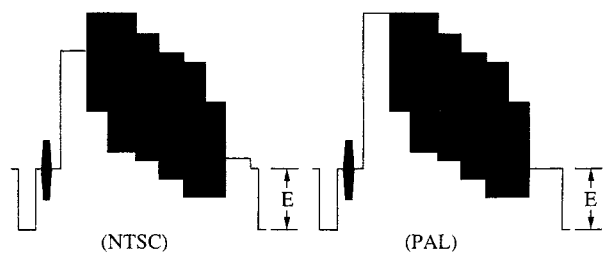
3. (UC model only) Adjust "ADJ NO. 7" of the electronic control so that the set up level "C" at VIDEO OUT is 7.5 ± 1 IRE.



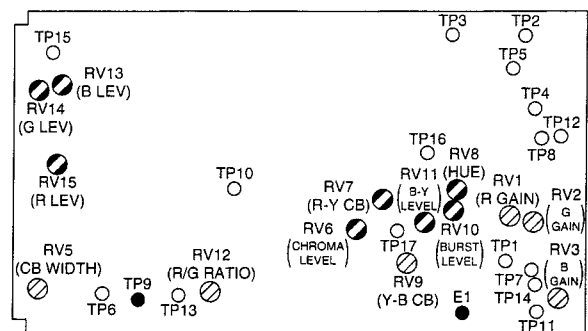
4. Adjust "ADJ NO. 5" of the electronic control so that the gray level "D" (PAL; white level "D") at VIDEO OUT is 75 ± 2 IRE (PAL; 700 ± 10 mV).



5. Adjust "ADJ NO. 6" of the electronic control so that the SYNC level "E" at VIDEO OUT is 40 ± 2 IRE (300 ± 10 mV).



6. Repeat steps 2 to 5 several times until the specification are met.



PR-158/158P BOARD (B SIDE)

5-2-5. Carrier Balance Adjustment

Equipment: Vectorscope (MAX GAIN)

To be extended: PR-158/158P board

Preparation:

• DISPLAY/BARS button → "BARS"

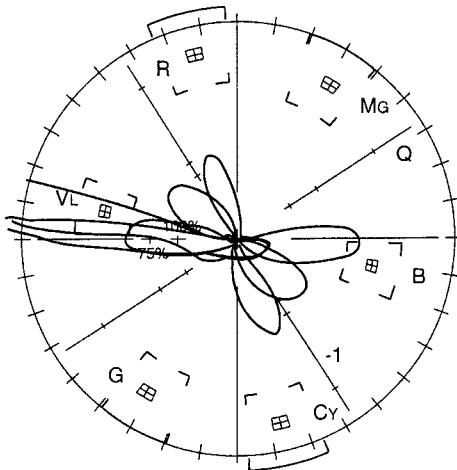
Test point: VIDEO OUT connector /rear panel

Adj. point: ●RV7, ●RV9/PR-158 (158P) board

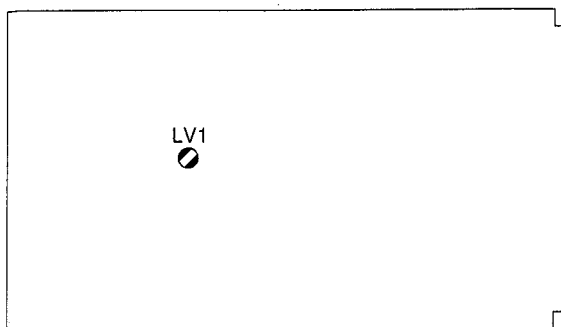
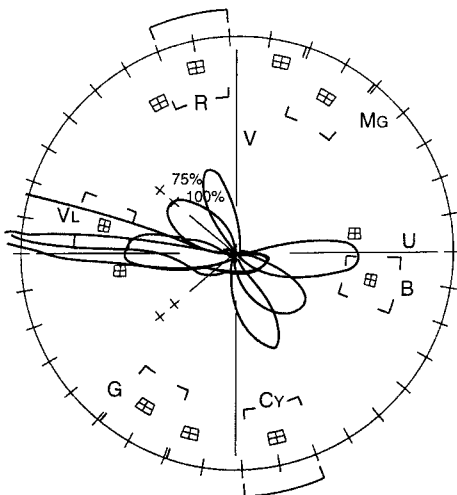
Specification:

Adjust RV7 and RV9/PR board so that the beam spot of the white level is located in the center of the vectorscope screen.

[NTSC]



[PAL] (VECTOR NTSC button: ON)



PR-158/158P BOARD (A SIDE)

DXC-930/930P
DXC-960MD

5-2-6. Color Vector Adjustment

Equipment: Vectorscope

To be extended: PR-158/158P board

Preparation:

1. GAIN switch/vectorscope → 75% CAL

2. Adjust the PHASE control so that the beam spot of the burst is set to the 75% axis.

3. DISPLAY/BARS button → BARS

Test point: VIDEO OUT connector/rear panel

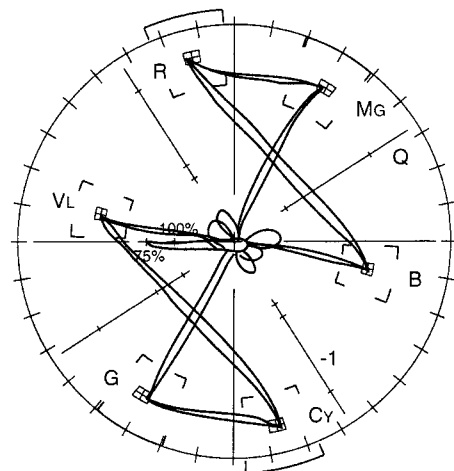
Adjustment Procedure:

1. Adjust ●RV10/PR board so that the burst spot is located at 75% scale mark on the vectorscope screen.

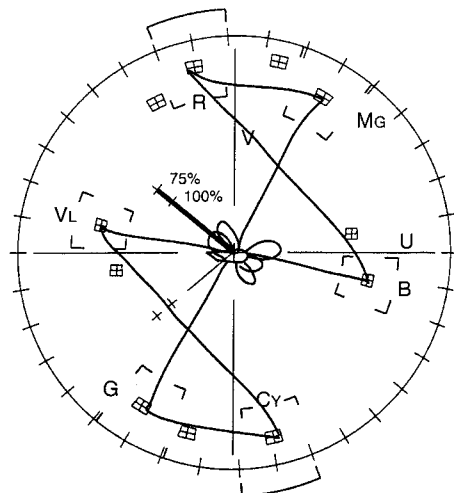
2. Adjust ●RV6, ●RV8, ●RV11 and ●LV1/PR board so that all the chroma spots are located on the specified scale point on the vectorscope screen.

3. Repeat steps 1 and 2 alternately until the specification are met.

[NTSC]



[PAL] (VECTOR NTSC button: ON)



5-2-7. Color-Bar Width Adjustment

Equipment: Oscilloscope

To be extended: PR-158/158P board

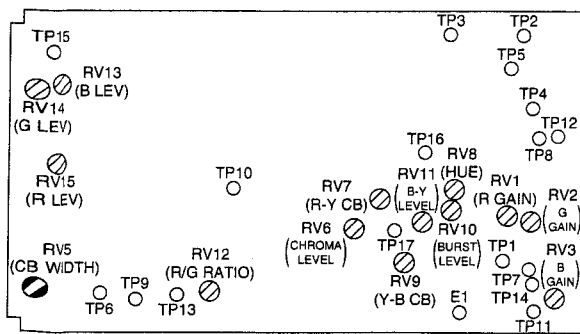
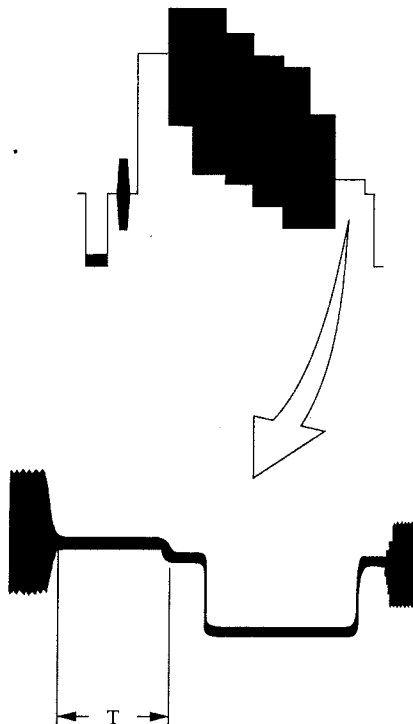
Preparation:

- DISPLAY/BARS button → "BARS"

Test point: VIDEO OUT connector/rear panel

Adj. point: RV5/PR-158 (158P) board

Specification: $T = 4.0 \pm 0.2 \mu s$ (NTSC)
 $T = 5.3 \pm 0.2 \mu s$ (PAL)



PR-158/158P BOARD (B SIDE)

5-2-8. Video Level Adjustment

Subject: Overall white, Grayscale chart

Equipment: Oscilloscope

To be extended: PR-158/158P board

Adjustment Procedure:

1. Subject: Overall white
 Lens iris → Open
2. C. TEMP. (Menu on the monitor screen) → 5600 K
 FLD/FRM (Menu on the monitor screen) → FLD
3. Adjust Electronic control as shown below.

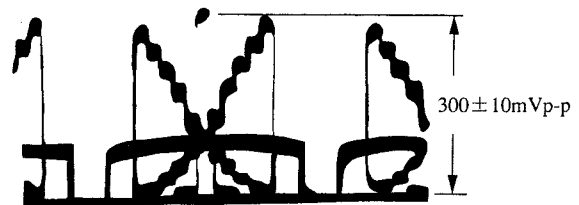
Test point /PR-158 board	Adjusting point/ electronic control	Specification
TP4 (GND: E1)	"ADJ No. 34"	$1.0 \pm 0.01 V_{p-p}$

4. C. TEMP. (Menu on the monitor screen) → 3200 K
5. Adjust Electronic control as shown below.

Test point /PR-158 board	Adjusting point/ electronic control	Specification
TP12 (GND: E1)	"ADJ No. 35"	$1.0 \pm 0.01 V_{p-p}$



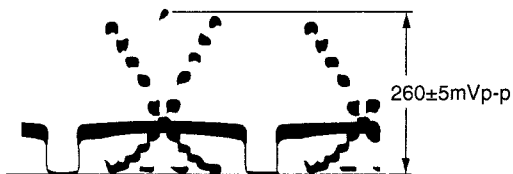
6. Subject: Grayscale chart
7. Adjust the lens iris so that the video level at TP7 (GND: E1) on the PR board is $300 \pm 10 mV_{p-p}$.



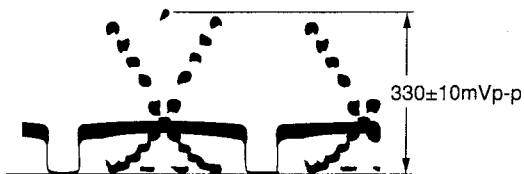
8. Set the data of "ADJ No. 10" (Electronic control) to 50.
9. Set the data of "ADJ No. 12" (Electronic control) to 100.

10. Perform adjustment in order of G, R and B channels as shown below.

	Test point /PR-158 board	Adjusting point /PR-158 board	Specification
G	TP2 (GND: E1)	RV2	260±5m V p-p
R	TP3 (GND: E1)	RV1	
B	TP5 (GND: E1)	RV3	



11. Adjust the "ADJ NO. 12" of the electronic control so that the video level at TP2 (GND: E1) on the PR board is 330 ± 10 mVp-p.



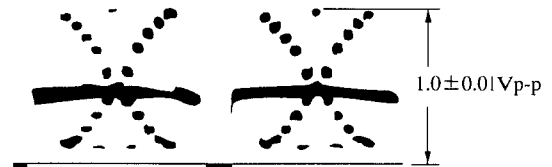
12. Adjust electronic control "ADJ No. 10" so that the value is raised, and stop it just before the video level goes up.

13. Adjust the "ADJ NO. 13" of the electronic control so that the video level at TP9 (GND: E1) on the PR board is 1.0 ± 0.01 Vp-p.

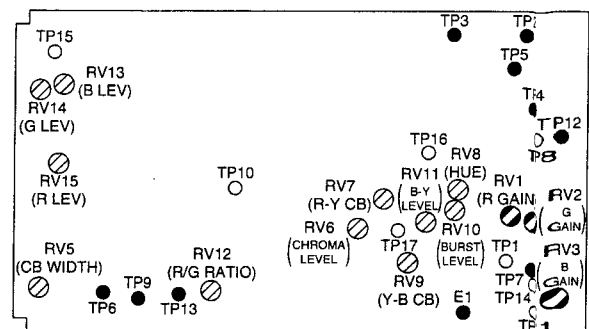
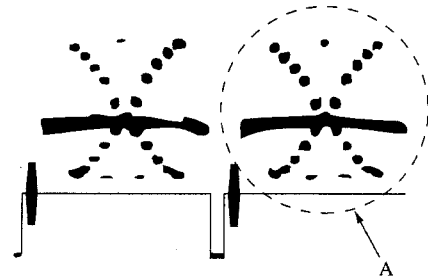


14. Perform adjustment in order of R and B channels as shown below.

	Test point /PR-158 board	Adjusting point/ electronic control	Specification
R	TP6 (GND: E1)	"ADJ No. 14"	1.0 ± 0.01 V p-p
B	TP13 (GND: E1)	"ADJ No. 15"	



15. Repeat steps 13 and 14 alternately until a portion A of the carrier leakage at VIDEO OUT is minimum on the waveform monitor screen.



PR-158/158P BOARD (B SIDE)

5-2-9. Black Set Adjustment

Equipment: Waveform monitor, Vectorscope

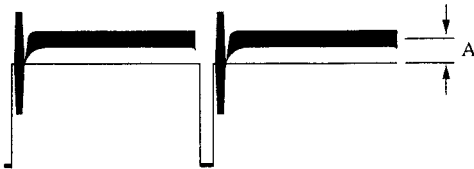
To be extended: PR-158/158P board

Preparation:

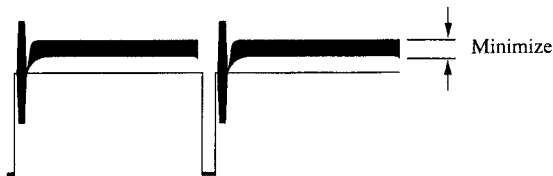
- Lens iris → Close

Adjustment Procedure:

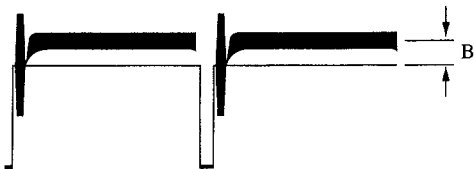
1. Adjust "ADJ NO. 20" of the electronic control so that the video level "A" at VIDEO OUT is 10.5 ± 2 IRE (PAL; 3 ± 1 %).



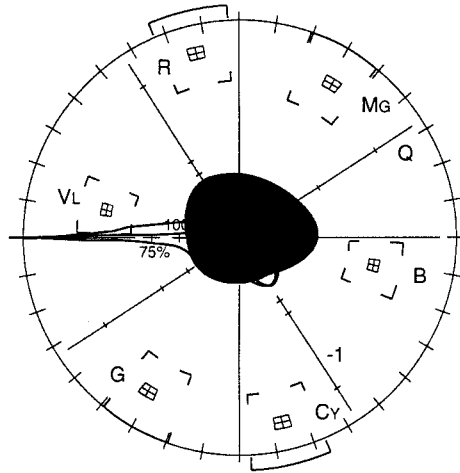
2. Adjust "ADJ NO. 19" and "ADJ NO. 21" of the electronic control so that the carrier leakage at VIDEO OUT is minimum.



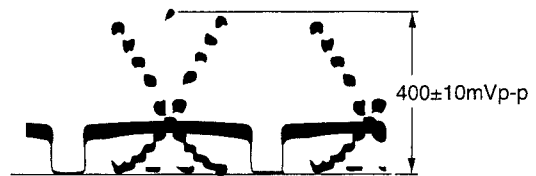
3. Repeat steps 1 and 2 alternately until the specifications are met.
4. GAIN switch → 18 dB
5. Adjust "ADJ NO. 2" of the electronic control so that the video level "B" at VIDEO OUT is 10.5 ± 2 IRE (PAL; 3 ± 1 %).



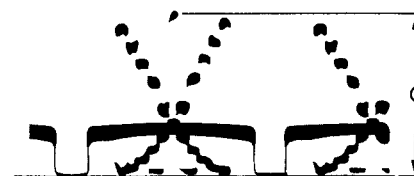
6. Adjust "ADJ NO. 1" and "ADJ NO. 3" of the electronic control alternately so that the beam spot of black level is located in center on vectorscope screen.



7. Repeat steps 5 and 6 alternately until the specifications are met.
8. Adjust the lens iris so that the video level at TP2 (GND: E1) /PR board is 400 ± 10 mVp-p.



9. Adjust "ADJ NO. 9" of the electronic control so that the video level "C" at TP2 (GND: E1) /PR board is set just before the level goes down.



Note: After the adjustment, set the switch as shown below.
GAIN switch → 0dB

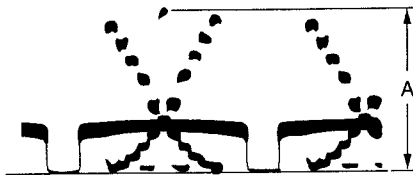
5-2-10. GAIN AGC Adjustment

Subject: Grayscale chart
Equipment: Oscilloscope
To be extended: PR-158/158P board
Preparation:

- Lens iris → F8
- GAIN (Menu on the monitor screen) → AGC

Adjustment Procedure:

- Adjust "ADJ NO. 11" of the electronic control so that the video level "A" at TP2 (GND: E1)/PR board is 300 ± 5 mV p-p.

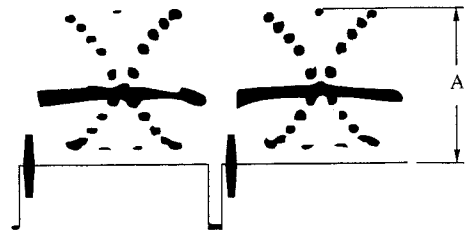


Note: After the adjustment, set the switch as follows.
 GAIN (Menu on the monitor screen) → STEP

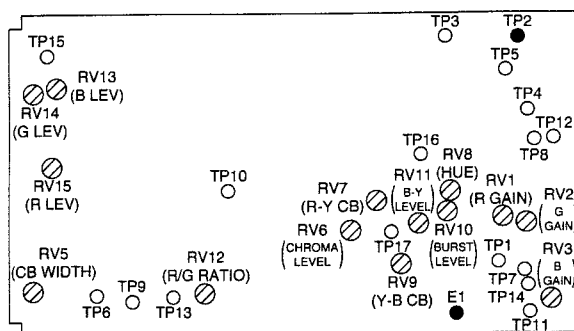
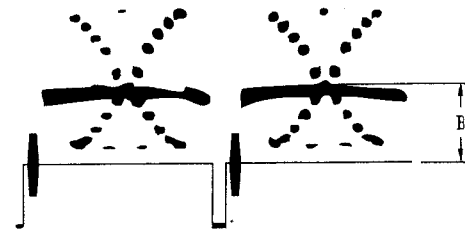
5-2-11. Cross point Adjustment

Subject: Grayscale chart
Equipment: Waveform monitor
To be extended: PR-158/158P board
Adjustment Procedure:

1. Adjust the lens iris so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).



2. Adjust "ADJ NO. 22" of the electronic control so that the cross point level "B" at VIDEO OUT is 56 ± 1 IRE (PAL; 360 ± 5 mV).



PR-158/158P BOARD (B SIDE)

5-2-12. White Level Adjustment

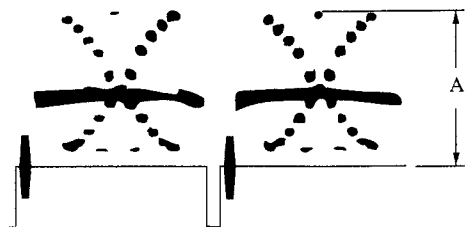
Subject: Grayscale chart

Equipment: Waveform monitor

To be extended: PR-158/158P board

Adjustment Procedure:

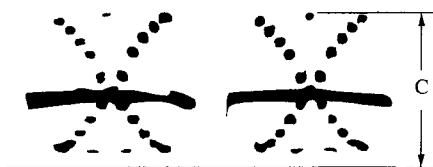
1. Adjust the lens iris so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).



2. Adjust "ADJ NO. 23" of the electronic control just before where the video level "B" at TP9 (GND: E1) /PR board decreases less than 100 IRE (PAL; 700 mV).

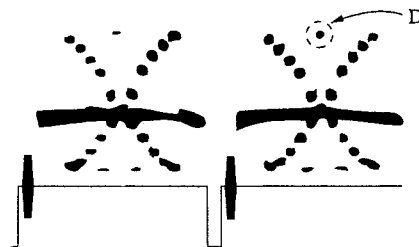


3. Adjust "ADJ NO. 17" of the electronic control just before where the video level "C" at TP9 (GND: E1) /PR board decreases less than 100 IRE (PAL; 700 mV).



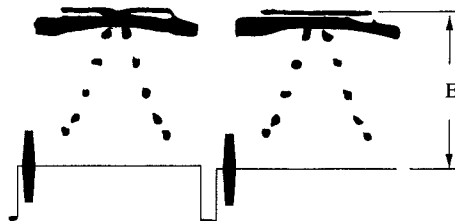
4. Lens iris \rightarrow F4

5. Adjust "ADJ NO. 16" and "ADJ NO. 18" of the electronic control so that the carrier leakage "D" of white level portion at VIDEO OUT is minimum.

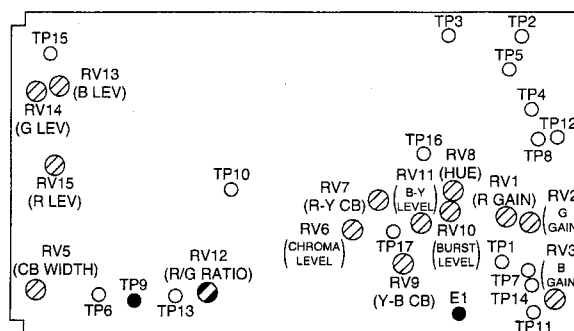


6. Lens iris \rightarrow F2.8 or F2

7. Adjust "ADJ NO. 8" of the electronic control so that the white clip level "E" at VIDEO OUT is 115 ± 2 IRE (PAL; 805 ± 10 mV).



8. Set the data of "ADJ No. 24" (Electronic control) to 255.



PR-158/158P BOARD (B SIDE)

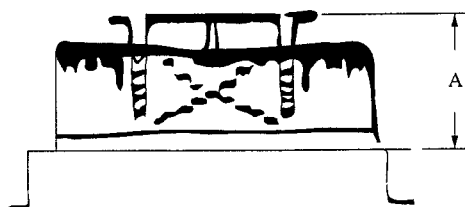
5-2-13. Aperture Detail Adjustment

Subject: Resolution chart, Grayscale chart

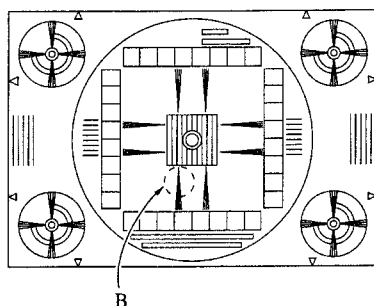
Equipment: B/W monitor screen, Waveform monitor, Oscilloscope

Adjustment Procedure:

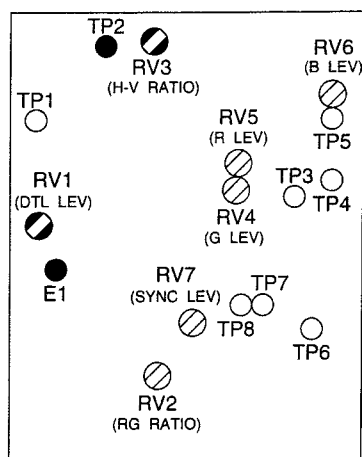
1. Subject: Resolution chart
2. To be extended: PR-158/158P board
3. Adjust the lens iris so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).



4. Set the data of "ADJ No. 27" (Electronic control) to 60.
Set the data of "ADJ No. 25" (Electronic control) to 100.
Set the data of "ADJ No. 26" (Electronic control) to 151.
5. Adjust RV12/PR board so that the highest resolution at portion "B" is obtained, observing the B/W monitor.

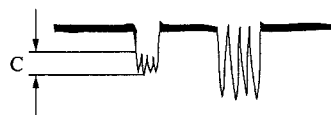
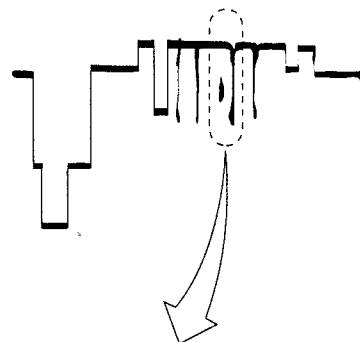


6. Select the 730 to 740 TV lines of the resolution chart with the "LINE SELECTOR" of the waveform monitor.



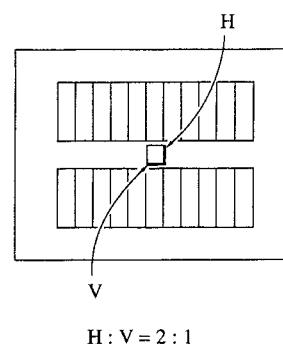
IF-354/354P BOARD (A SIDE)

7. Adjust "ADJ NO. 25" of the electronic control so that the modulation degree "C" is from 8 to 10 IRE (PAL; 56 to 70 mV).



8. Subject: Grayscale chart
9. To be extended: IF-354/354P board
10. Adjust RV1/IF-354 (354P) board so that only V detail signal having appears at TP2 (GND: E1) /IF board.
11. Observing the white portion on the grayscale chart and adjust RV3/IF board so that the overlapping detail ratio of H to V on the grayscale is 2 to 1 on the monitor screen.

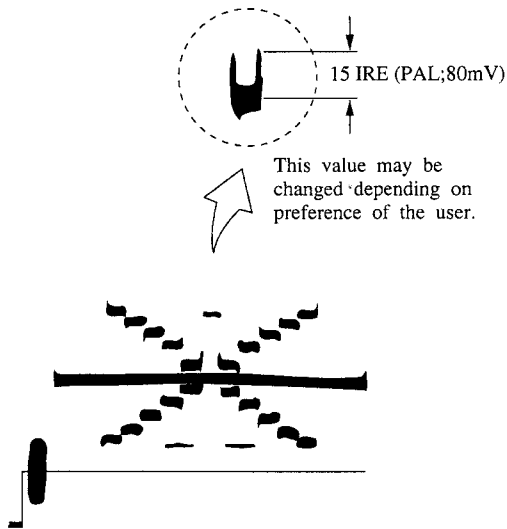
(Monitor)



12. Set the data of "ADJ No. 27" (Electronic control) to 20.
Set the data of "ADJ No. 28" (Electronic control) to 20.

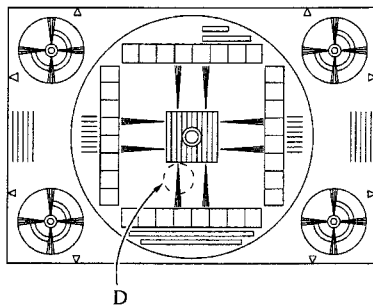
13. Adjust "ADJ NO. 28" of the electronic control so that the spikes (detail level during H period) at both ends of white level are 15 IRE (PAL; 80 mV).

This level can be changed according to the users' requirements.



14. Subject: Resolution chart

15. Adjust RV2/IF board so that the highest resolution of portion "D" portion is obtained, observing the B/W monitor.



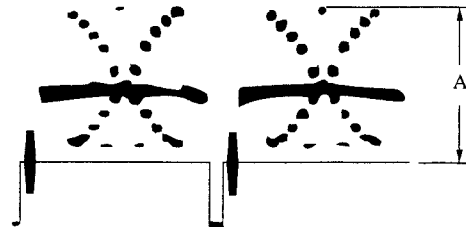
5-2-14. IRIS Adjustment

Subject: Grayscale chart
Equipment: Waveform monitor
To be extended: IF-354/354P board
Preparation:

- IRIS AUTO/MANU → "AUTO"

Adjustment Procedure:

1. Adjust "ADJ NO. 30" of the electronic control so that the video level "A" at VIDEO OUT is 100 ± 2 IRE (PAL; 700 ± 10 mV).

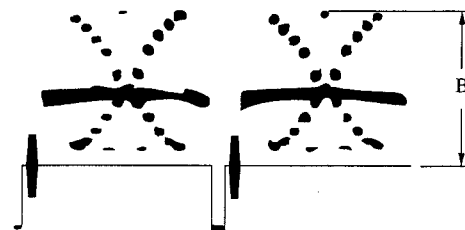


2. IRIS AUTO/MANU → MANU

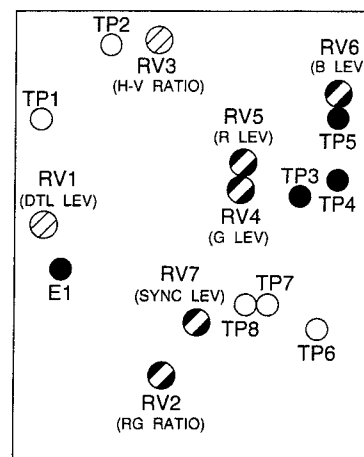
Lens iris → F2.8

CCD IRIS (Menu on the monitor screen) → ON

3. Adjust "ADJ NO. 32" of the electronic control so that the video level "B" at VIDEO OUT is 105 ± 2 IRE (PAL; 735 ± 10 mV).



4. CCD IRIS (Menu on the monitor screen) → OFF
5. Set the data of "ADJ No. 37" (Electronic control) to 100.
Set the data of "ADJ No. 38" (Electronic control) to 003.



IF-354/354P BOARD (A SIDE)

5-2-15. G OUT Level Adjustment

Equipment: Oscilloscope

To be extended: IF-354/354P board

Preparation:

- Confirm that the "G. SYNC" (Menu on the monitor screen) is set to "ON".

- DISPLAY/BARS button → "BARS"

- SW7 (SYNC/SG1) /CN-579 (580) board → "SYNC"

Test point: TP4 (GND: E1) /IF-354 (354P) board

Specification: (75-ohm termination)

A = 714 ± 10 mV (For NTSC)

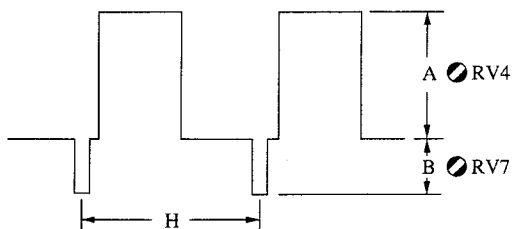
A = 700 ± 10 mV (For PAL)

● RV4/IF-354 (354P) board

B = 286 ± 5 mV (For NTSC)

B = 300 ± 5 mV (For PAL)

● RV7/IF-354 (354P) board



5-2-17. B OUT Level Adjustment

Equipment: Oscilloscope

To be extended: IF-354/354P board

Preparation:

- DISPLAY/BARS button → "BARS"

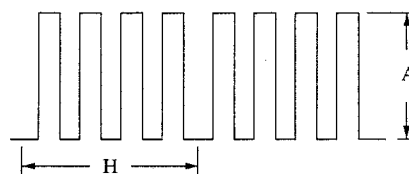
Test point: TP5 (GND: E1)/IF-354 (354P) board

Adj. point: ● RV6/IF-354 (354P) board

Specification: (75-ohm termination)

NTSC; A = 714 ± 10 mV

PAL; A = 700 ± 10 mV



5-2-16. R OUT Level Adjustment

Equipment: Oscilloscope

To be extended: IF-354/354P board

Preparation:

- DISPLAY/BARS button → "BARS"

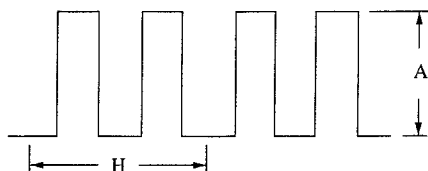
Test point: TP3 (GND: E1)/IF-354 (354P) board

Adj. point: ● RV5/IF-354 (354P) board

Specification: (75-ohm termination)

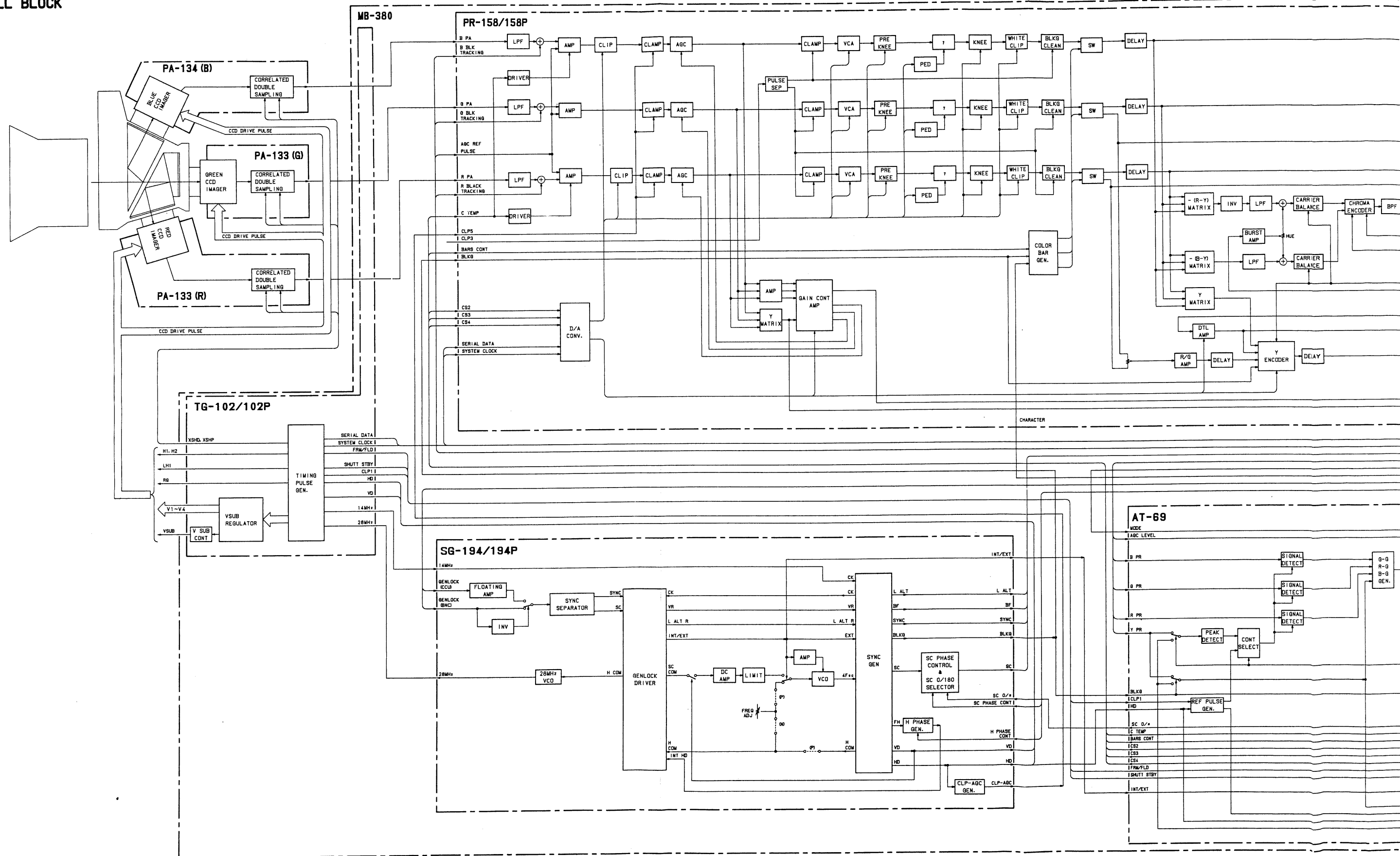
NTSC; A = 714 ± 10 mV

PAL; A = 700 ± 10 mV

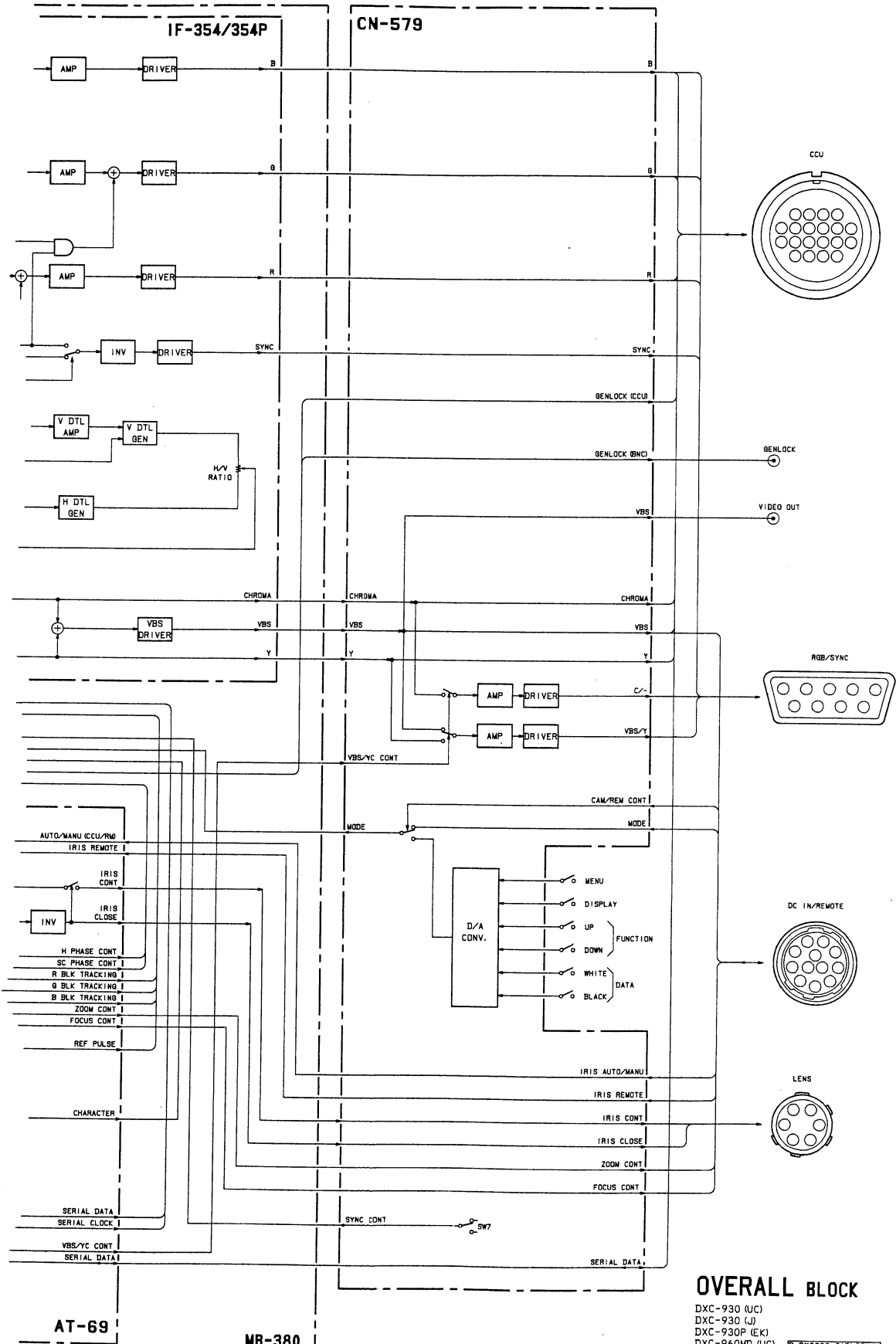
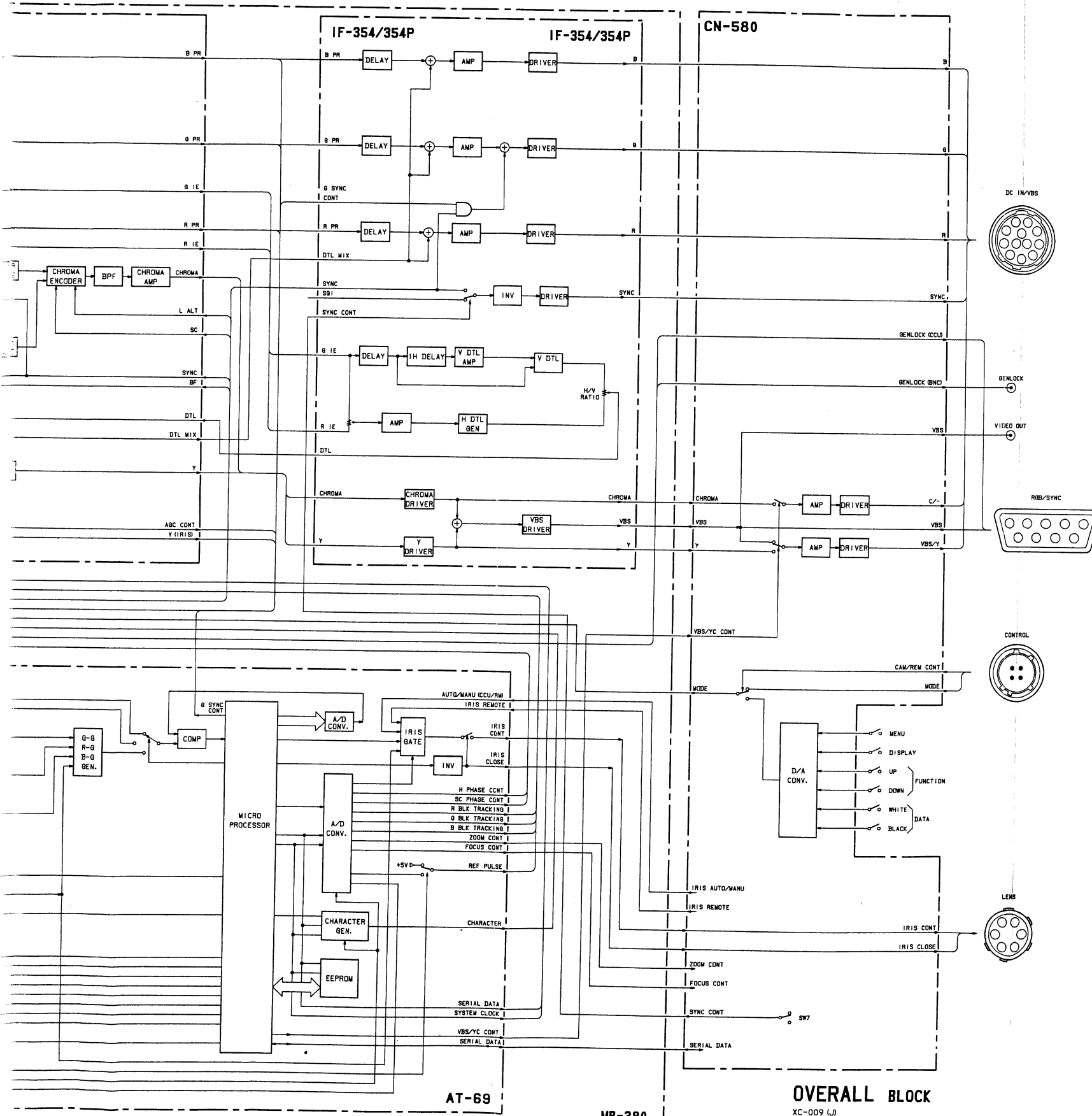


SECTION A BLOCK DIAGRAMS

OVERALL BLOCK



OVERALL	OVERALL
---------	---------

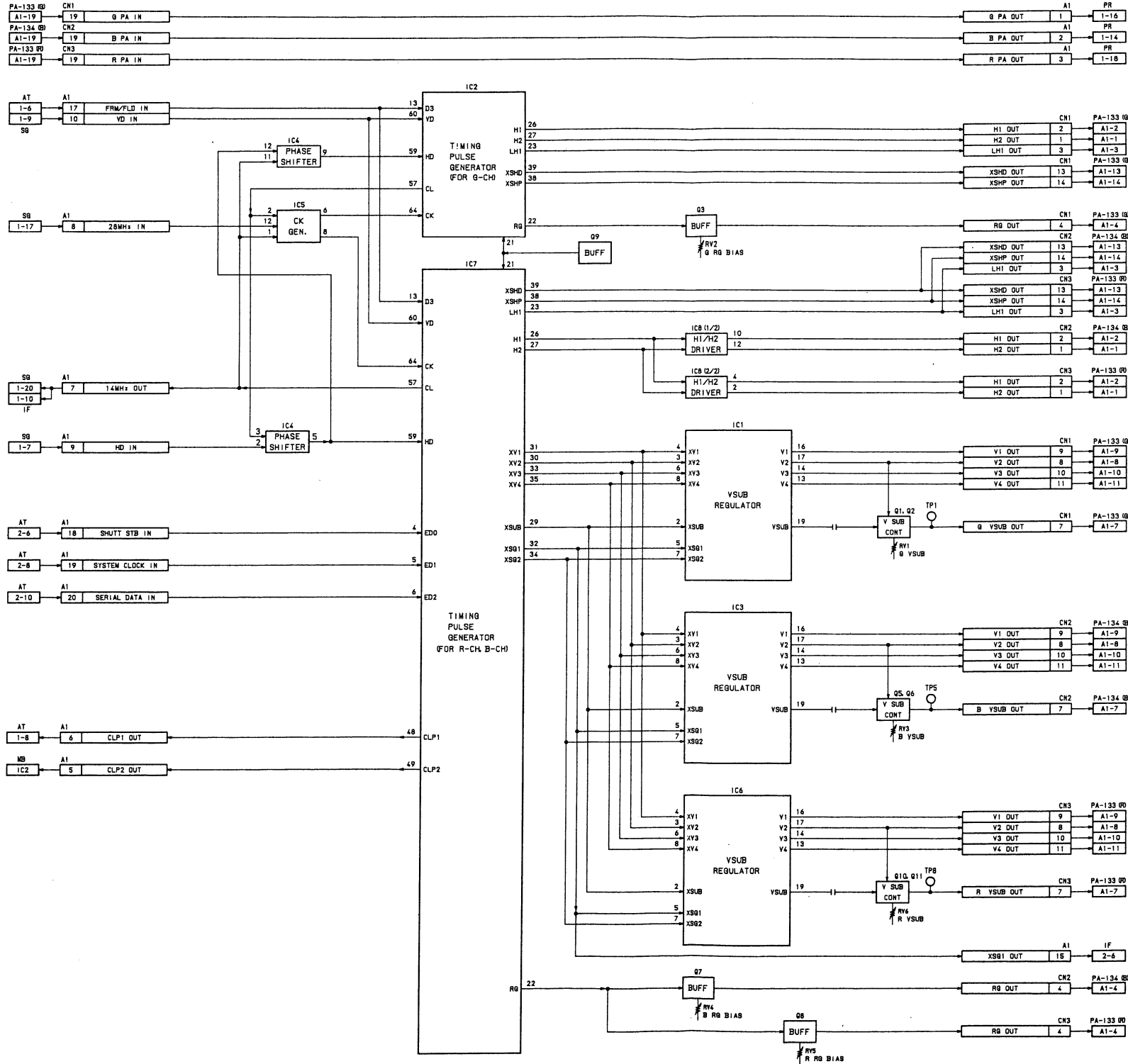


OVERALL BLOCK

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC) **B-DXC930-0ABLOCK/M**

TG-102/102P

TG-102/102P BLOCK



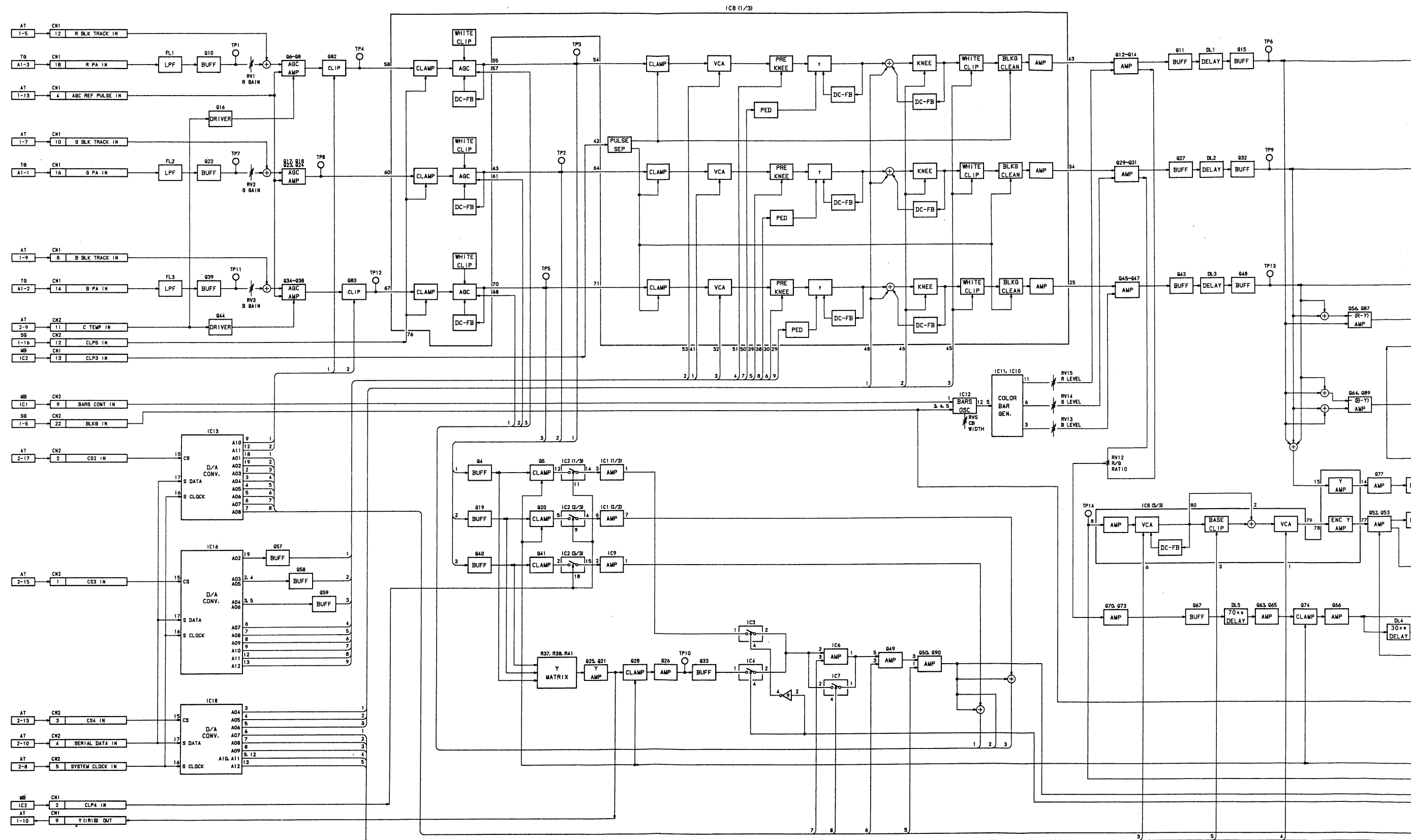
TG-102/102P BLOCK

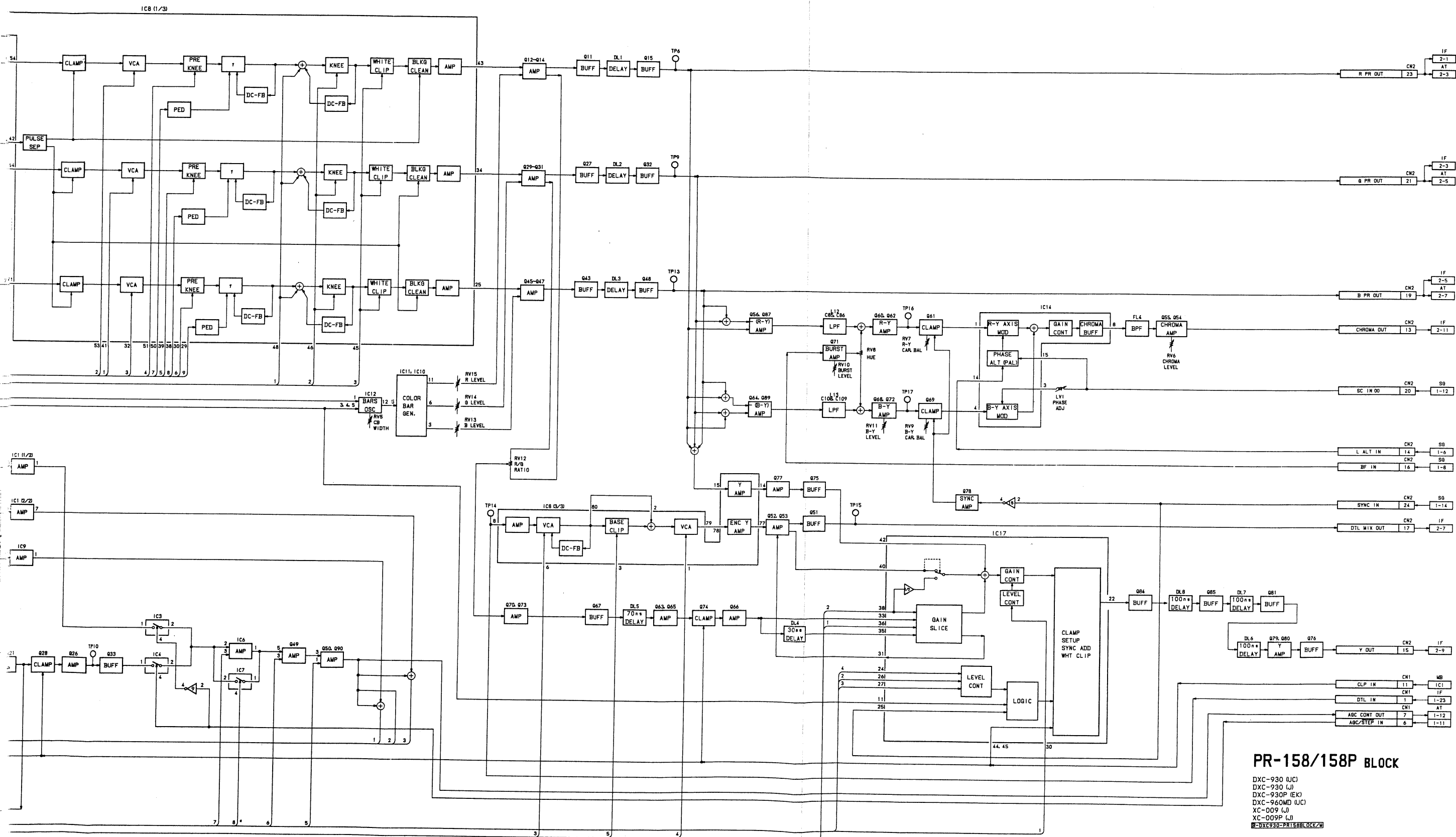
DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)
XC-009 (J)
XC-009P (J)
B-DXC930-T8102BLOCK/W

TG-102/102P TG-102/102P

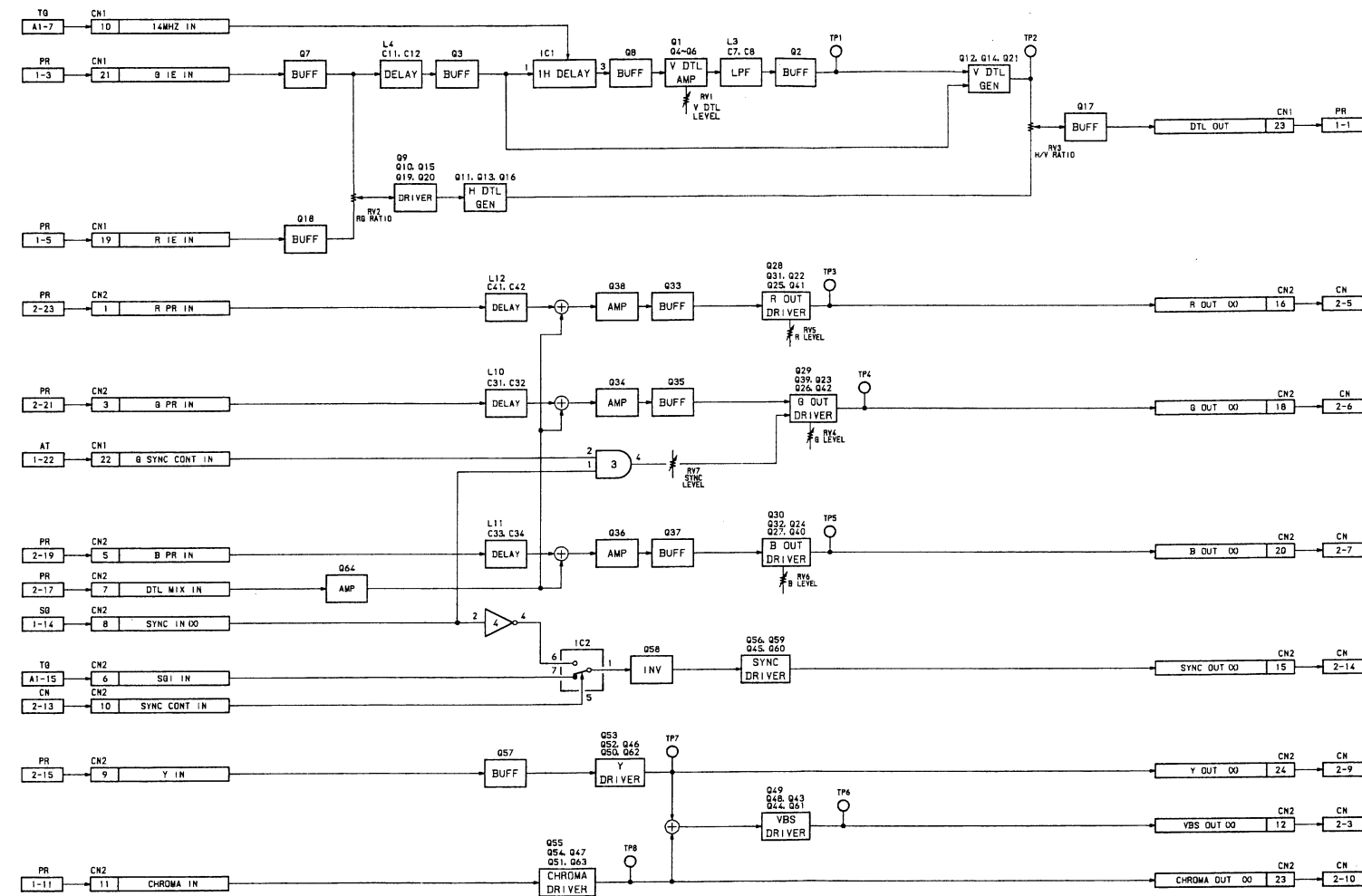
DXC-930/930P
DXC-960MD
XC-009/009P
P

PR-158/158P BLOCK





IF-354/354P BLOCK



IF-354/354P BLOCK

DXC-930 (UC)
 DXC-930 (L)
 DXC-930P (EK)
 DXC-960MD (UC)
 XC-009 (L)
 XC-009P (L)
 B-DXC930-IF354BLOCK/M

IF-354/354P

DXC-930/930P
DXC-960MD
XC-009/009P

A-14

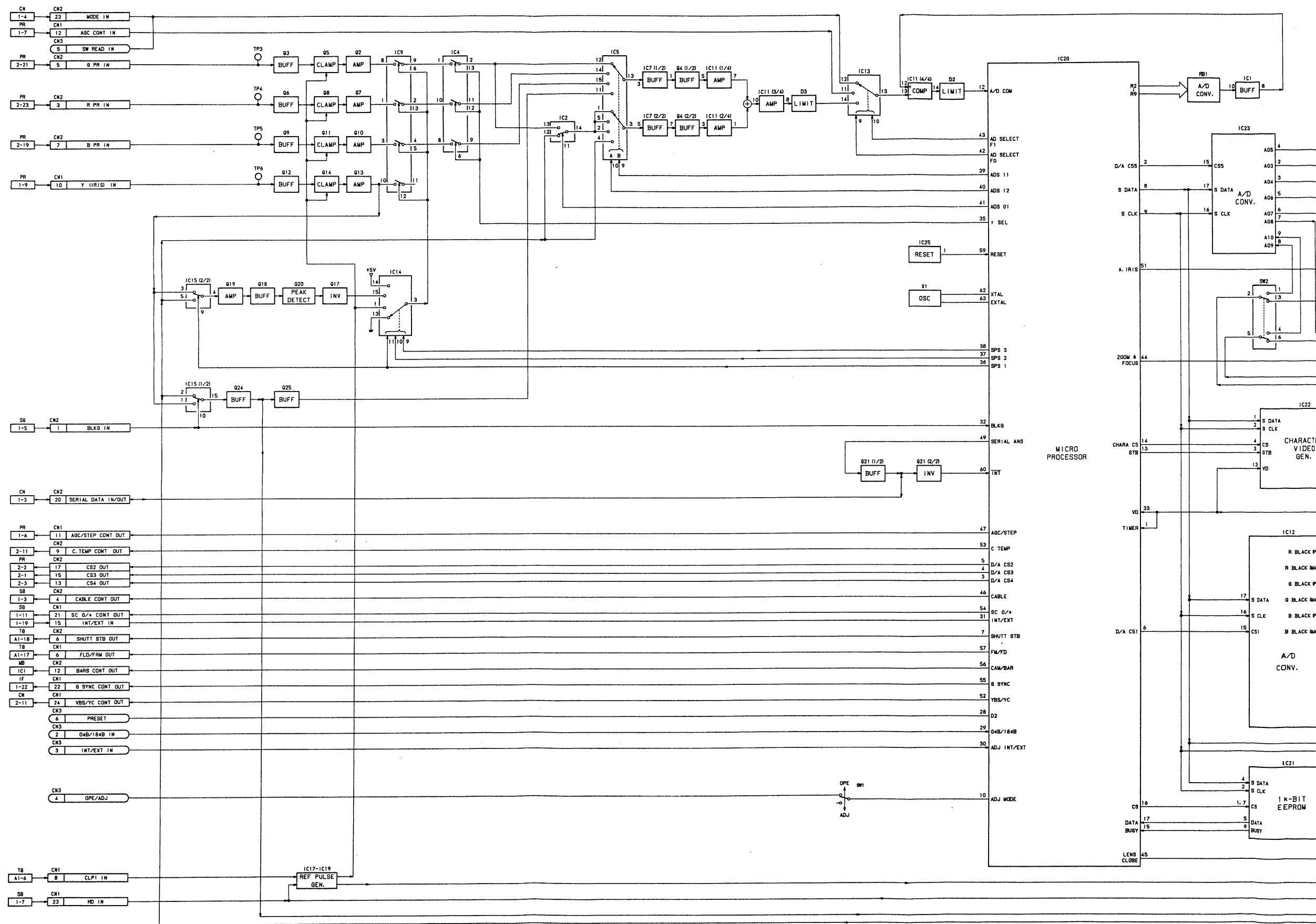
I

J

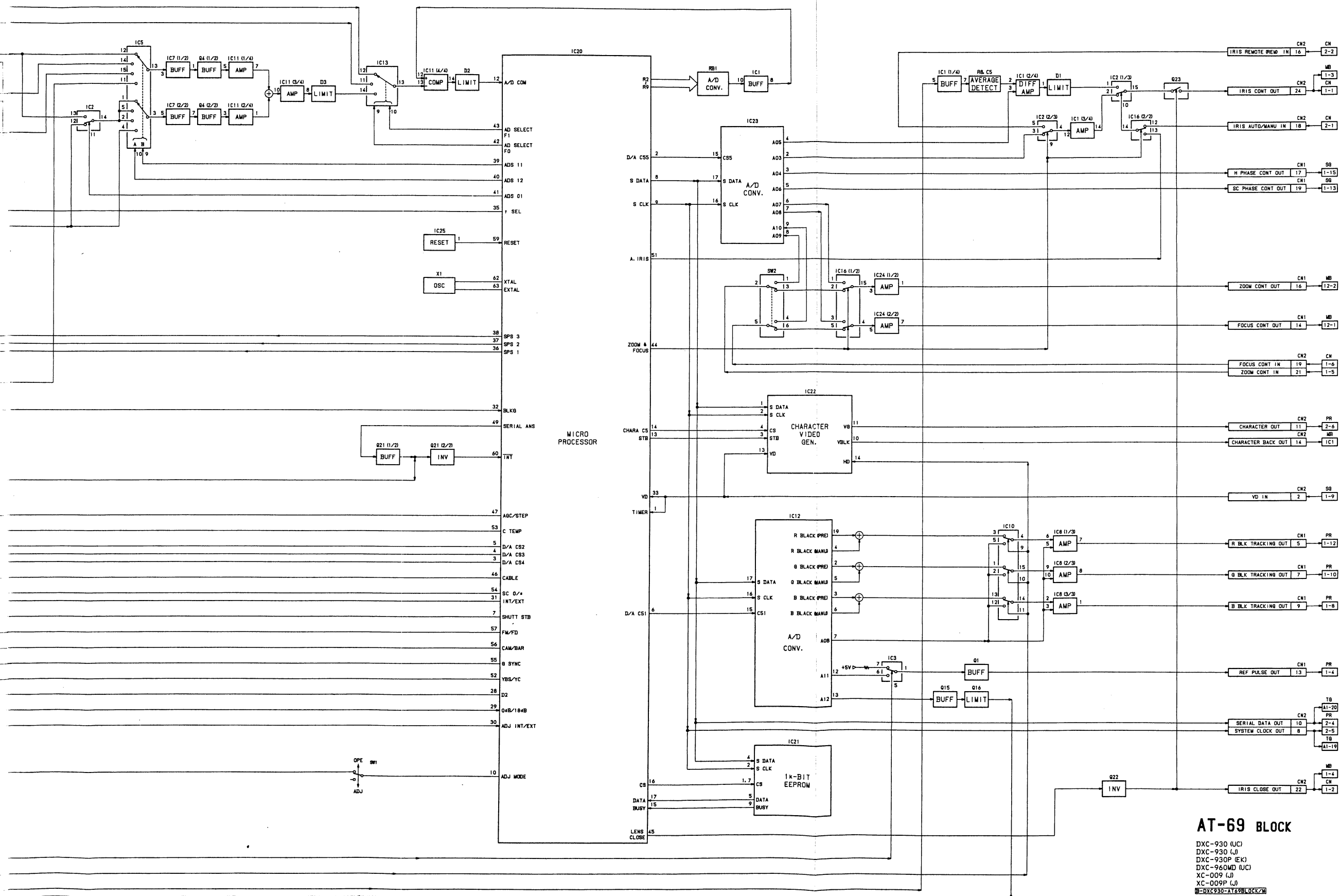
K

L

AT-69 BLOCK



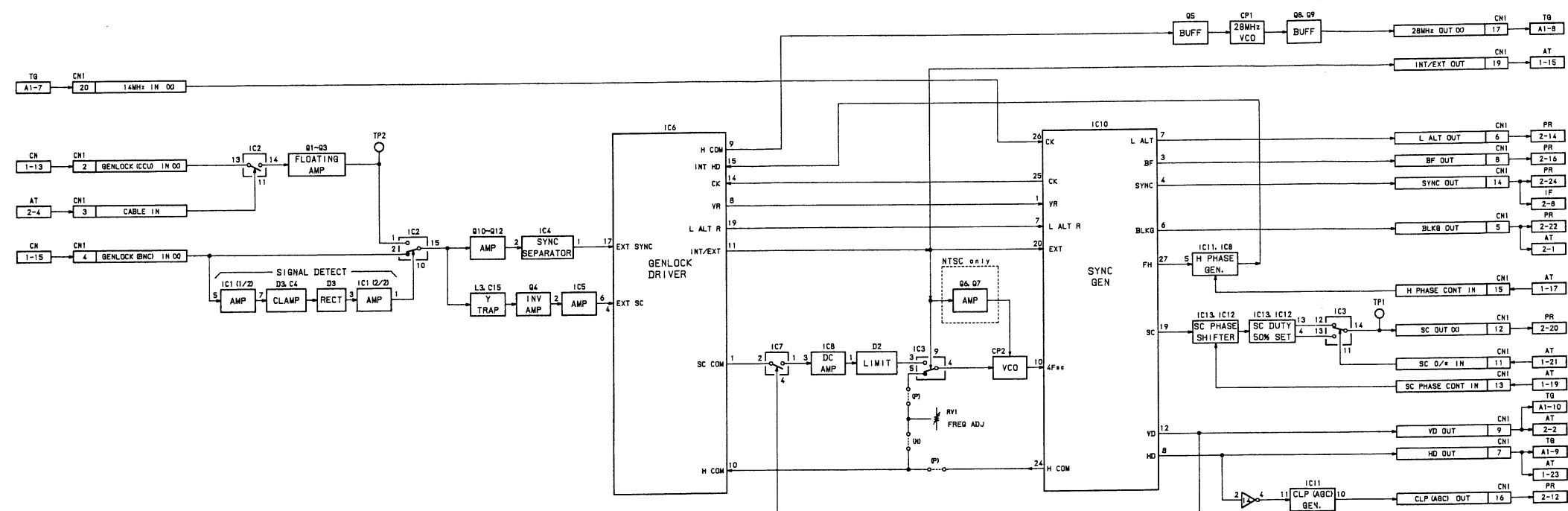
DXC-930/930P
DXC-960MD
XC-009/009P



AT-69 BLOCK

DXC-930 (UC)
DXC-930 (U)
DXC-930P (EK)
DXC-960MD (UC)
XC-009 (U)
XC-009P (U)
B-DXC930-AT69BLOCK/M

SG-194/194P BLOCK



SG-194/194P BLOCK

DXC-930 (UC)
DXC-930 (J)
DXC-930P (EK)
DXC-960MD (UC)
XC-009 (J)
XC-009P (J)
B-DXC930-SB194BLOCK/M

SG-194/194P

DXC-930/930P
DXC-960MD
XC-009/009P

A-20

I

J

K

L

SECTION B SEMICONDUCTOR

The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

TYPE	PAGE	TYPE	PAGE
02DZ ? ?	B-2	TC4S66F	B-12
1SS181	B-2	TC4S69F	B-12
1SS226	B-2	TC4S81F	B-12
1SS303	B-2	TC4W53F	B-12
1SS304	B-2	TC74HC4538AF	B-10
		TC7S04F	B-11
2SA1576	B-2	TL062CPS	B-10
2SA1611	B-2	TL064CNS	B-12
		TL084CNS	B-12
2SC4103	B-2	UPC2372GF-3B9	B-13
2SC4177	B-2	UPC358G2	B-14
		UPC4558G2	B-14
2SK852	B-2		
CX22017	B-3	UPD6142G-101	B-14
CXA1439M	B-3	XP1401	B-2
CXA1592R	B-3	XP1501	B-2
		XP4601	B-2
CXD1216M	B-4	XP6401	B-2
CXD1217M	B-4	XP6501	B-2
CXD1250N	B-5		
CXD1256AR	B-7		
CXL5504M	B-7		
D2FL20	B-2		
HD14053BFP	B-7		
HD63B05Y0E64F	B-8		
LM1881M	B-8		
M62352GP	B-9		
M6M80011AFP	B-9		
MA143	B-2		
MC14051BF	B-9		
MC14052BF	B-10		
MC14053BF	B-7		
MC14069UBF	B-10		
MC34182M	B-10		
MC74AC04M	B-10		
MC74HC4053F	B-10		
NJM360M	B-10		
S-8054ALR-LN	B-11		
SC7S04F	B-11		
SN74HC00ANS	B-11		
SN74HC193ANS	B-11		
SN74HC27ANS	B-11		
SN74HC4066NS	B-11		
SN74HC74ANS	B-12		
SN74LS123NS	B-12		

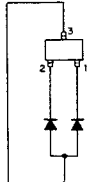
DIODE, TRANSISTOR

(SCALE 4/1)
TOP VIEW



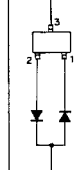
02DZ ? ?

(SCALE 4/1)
TOP VIEW



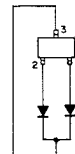
1SS181
1SS303

(SCALE 4/1)
TOP VIEW



1SS226

(SCALE 4/1)
TOP VIEW



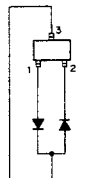
1SS304

(SCALE 2/1)
TOP VIEW



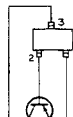
D2FL20

(SCALE 4/1)
TOP VIEW



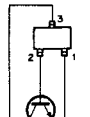
MA143

(SCALE 4/1)
TOP VIEW



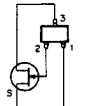
2SA1576
2SA1611

(SCALE 4/1)
TOP VIEW



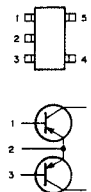
2SC4103
2SC4177

(SCALE 4/1)
TOP VIEW



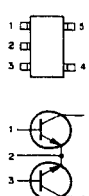
2SK852

(SCALE 6/1)
TOP VIEW



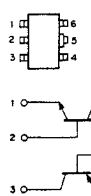
XP1401

(SCALE 6/1)
TOP VIEW



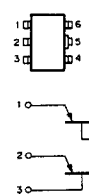
XP1501

(SCALE 6/1)
TOP VIEW



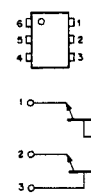
XP4601

(SCALE 6/1)
TOP VIEW



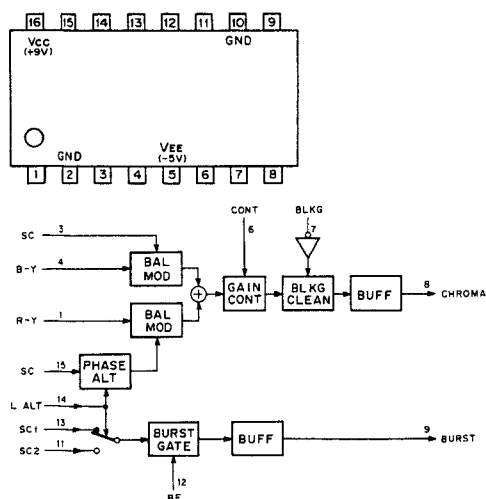
XP6401

(SCALE 6/1)
TOP VIEW

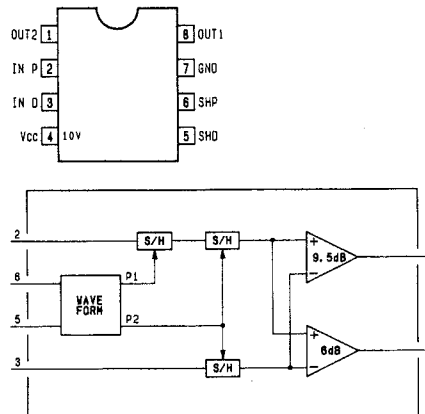


XP6501

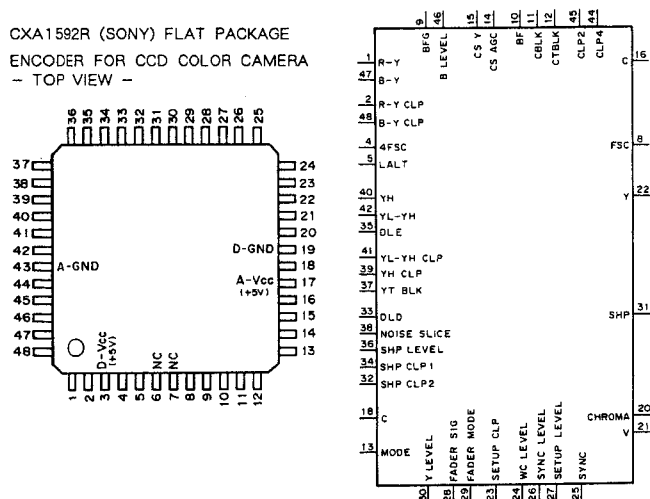
CX22017 (SONY)
VIDEO SIGNAL PROCESSOR
- TOP VIEW -



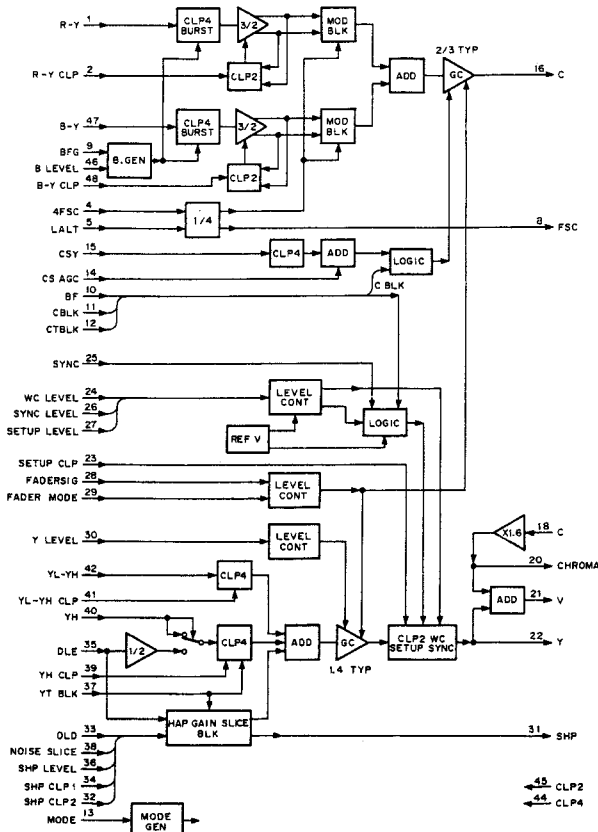
CXA1439M (SONY) FLAT PACKAGE
CORRELATED DOUBLE SAMPLING
- TOP VIEW -



CXA1592R (SONY) FLAT PACKAGE
ENCODER FOR CCD COLOR CAMERA
~ TOP VIEW ~



PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL
1	I	R-Y	13	I	MODE	25	I	SYNC	37	I	YTBK
2	I	R-Y CLP	14	I	CS AGY	26	I	SYNC LEVEL	38	I	NOISE SLIP
3	-	D-VCC (+5V)	15	I	CSY	27	I	SETUP LEVEL	39	I	YH CLP
4	I	4FSC	16	O	C	28	I	FADER SIG	40	I	YH
5	I	LALT	17	-	A-VCC (+5V)	29	I	FADER MODE	41	I	YL-YH CLP
6	-	NC	18	I	C	30	I	Y LEVEL	42	I	YL-YH
7	-	NC	19	-	D-GND	31	O	SHP	43	-	A-GND
8	O	FSC	20	O	CHROMA	32	I	SHP CLP2	44	-	CLP4
9	I	BFG	21	O	V	33	I	DLD	45	I	CLP2
10	I	BF	22	O	Y	34	I	SHP CLP1	46	I	B LEVEL
11	I	CBLK	23	I	SETUP CLP	35	I	DLE	47	I	B-Y
12	I	CTBLK	24	I	WC LEVEL	36	I	SHP LEVEL	48	I	B-Y CLP



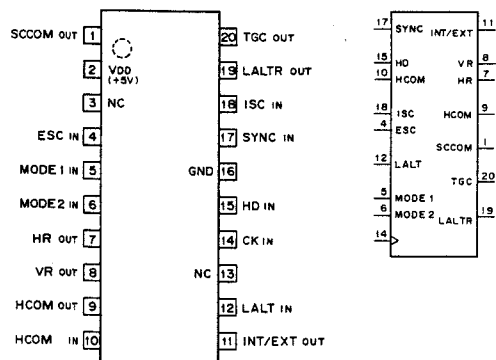
- ```

INPUT
4FSC : 4FSC USED TO MAKE UP THE SUB CARRIER
8 LEVEL : CONTROLS THE BURST LEVEL
BF : BURST FLAG PULSE
BFG : INSERTS PULSE SLIGHT LARGER THAN BF ON BOTH ENDS
C : INPUT FOR CHROMA SIGNAL PASSED THROUGH BPF
CBLK : COMPOSITE BLANKING PULSE
CLP2, 4 : CLAMP2, 4 PULSE INPUT
CS, AGC : SUPPRESS CHROMA SIGNAL AT THE AGC GAIN CONTROL SIGNAL
CSD : SUPPRESS CHROMA SIGNAL AT THE Y SIGNAL
CLBLK : CHROMA TITLER PULSE
DLE : CONNECTS THE DELAY LINE DRIVE SIDE OF THE APERTURE SIGNAL
DLE : CONNECTS THE DELAY LINE END SIDE OF THE APERTURE SIGNAL
FADER MODE : BLACK FADER AND WHITE FADER MODE SELECT
FADER SG : CONTROLS THE SIGNAL SUPPRESS LEVEL DURING BLACK FADER, CONTROLS
 THE SIGNAL SUPPRESS LEVEL DURING WHITE FADER AND AT THE SAME TIME
 CONTROLS THE SET UP LEVEL
LALT : INPUT FOR LINE ALTERNATE SIGNAL DURING PAL MODE
MODE : SELECTS NTSC, PAL OR NTSC x 2, PAL x 2 MODES
NOISE SLICE : CONTROLS THE SLICE LEVEL OF THE APERTURE SIGNAL
R-Y, B-Y : R-Y, B-Y SIGNAL
R-Y CLP : CONNECTING THE CAPACITOR FOR R-Y, B-Y MODULATOR CLAMP
SETUP CLP : CONNECTING FOR THE WHITE CLIP CLAMP CAPACITOR
SETUP LEVEL : SET UP LEVEL CONTROL
SHP CLP1, 2 : CONNECTS THE CLAMP CAPACITOR USED FOR THE SLICE OF THE APERTURE
 SIGNAL
SHP LEVEL : CONTROL OF THE APERTURE SIGNAL LEVEL
SYNC : SYNC PULSE
SYNC LEVEL : SYNC LEVEL CONTROL
WC LEVEL : WHITE CLIP LEVEL CONTROL
Y LEVEL : Y SIGNAL LEVEL CONTROL
YH : YH SIGNAL
YH CLP : CONNECTS THE CAPACITOR FOR YH INPUT CLAMP
YL-YH : V APERTURE SIGNALS, TITLER SIGNALS AND YL-YH SIGNALS
YL-YH CLP : CONNECTS THE CAPACITOR FOR YL-YH INPUT CLAMP
YTLK : Y TITLER PULSE

OUTPUT
C : CHROMA SIGNAL OUTPUT
CHROMA : CHROMA SIGNAL OUTPUT WHEN USED FOR Y/C SEPARATION OUTPUT
FSC : OUTPUTS A SUB CARRIER WITH THE SAME PHASE AS B-Y
SHP : APERTURE SIGNAL
SHP : COMPOSITE VIDEO SIGNAL
Y : Y SIGNAL OUTPUT WHEN USED FOR Y/C SEPARATION OUTPUT

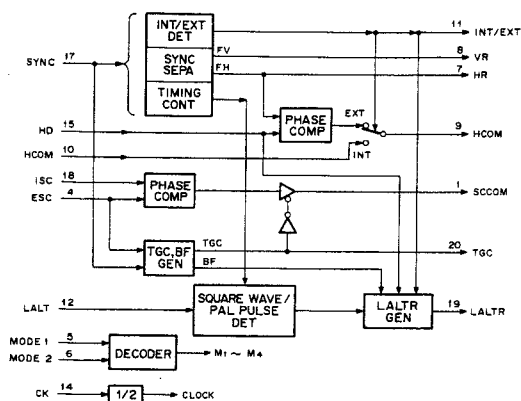
```

CXD1216M (SONY) FLAT PACKAGE  
C-MOS GENLOCK DRIVER  
- TOP VIEW -



| INPUT |       | MODE | SYSTEM                                |
|-------|-------|------|---------------------------------------|
| MODE1 | MODE2 |      |                                       |
| 0     | 0     | M1   | PAL-VBS                               |
| 1     | 0     | M2   | PALM-VBS                              |
| 0     | 1     | M3   | PAL-SECAM-VS/SC/LALT                  |
| 1     | 1     | M4   | NTSC-VBS, NTSC-VS/SC, PALM-VS/SC/LALT |

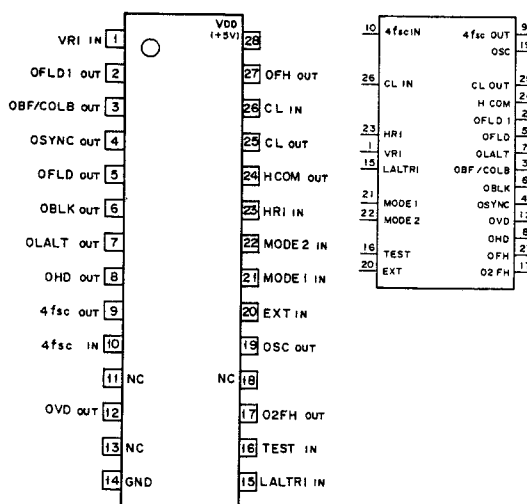
0: LOW LEVEL  
1: HIGH LEVEL



**INPUT**  
CK : 4fsc CLOCK INPUT  
ESC : SC/COLOR BURST  
HCOM : PHASE COMPARE FROM CXD1217  
HD : H DRIVE FROM CXD1217  
ISC : SUBCARRIER FROM CXD1217  
LALT : LALT FROM REFERENCE SIGNAL GENERATOR  
MODE1,2 : SYSTEM SELECT  
SYNC : SYNC FROM REFERENCE SIGNAL GENERATOR

**OUTPUT**  
HCOM : PHASE COMPARE HR WITH HD  
HR : FH OF SYNC SEPARATE  
INT/EXT : INTERNAL/EXTERNAL SPECIFIED  
LALTR : LINE CHANGE RESET  
SCCOM : PHASE COMPARE ESC WITH ISC  
TGC : TRISTATE CONTROL  
VR : TV OF SYNC SEPARATE

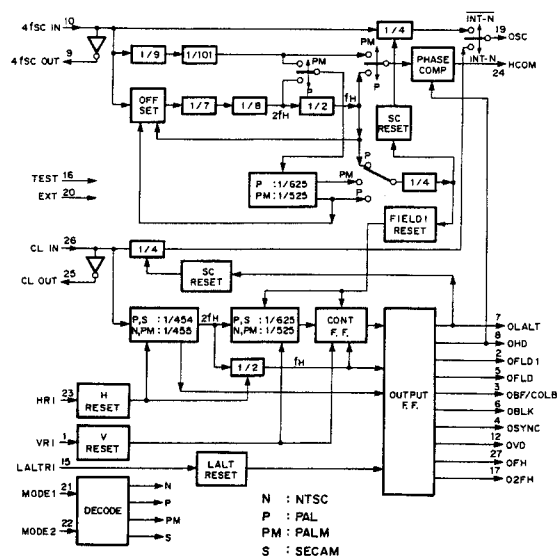
CXD1217M (SONY) FLAT PACKAGE  
C-MOS SYNC GENERATOR  
- TOP VIEW -



| SYSTEM | 4fsc     | CLOCK |
|--------|----------|-------|
| NTSC   | 910H     | 910H  |
| PAL    | 1135H+2V | 908H  |
| PALM   | 909H     | 910H  |
| SECAM  | —        | 908H  |

| INPUT |       | SYSTEM |
|-------|-------|--------|
| MODE1 | MODE2 |        |
| 0     | 0     | NTSC   |
| 0     | 1     | SECAM  |
| 1     | 0     | PALM   |
| 1     | 1     | PAL    |

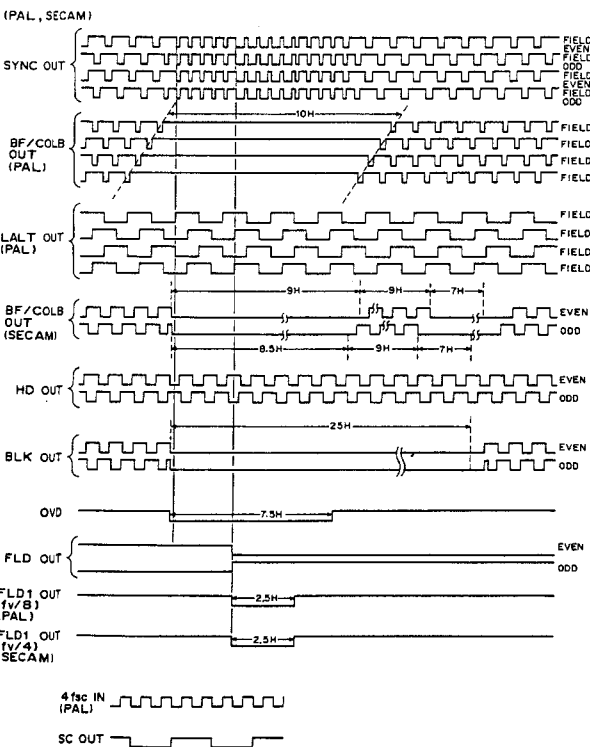
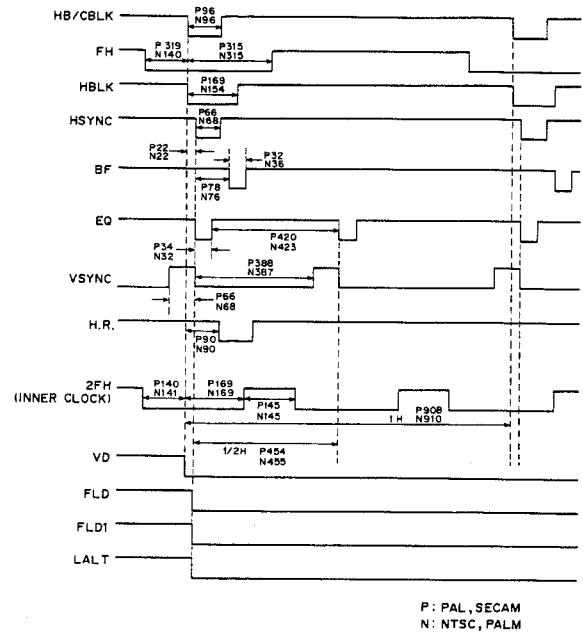
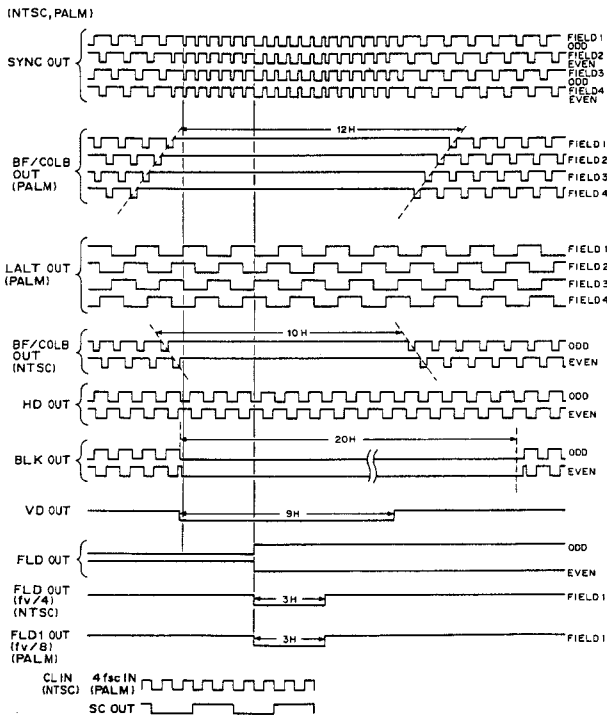
0: LOW LEVEL  
1: HIGH LEVEL



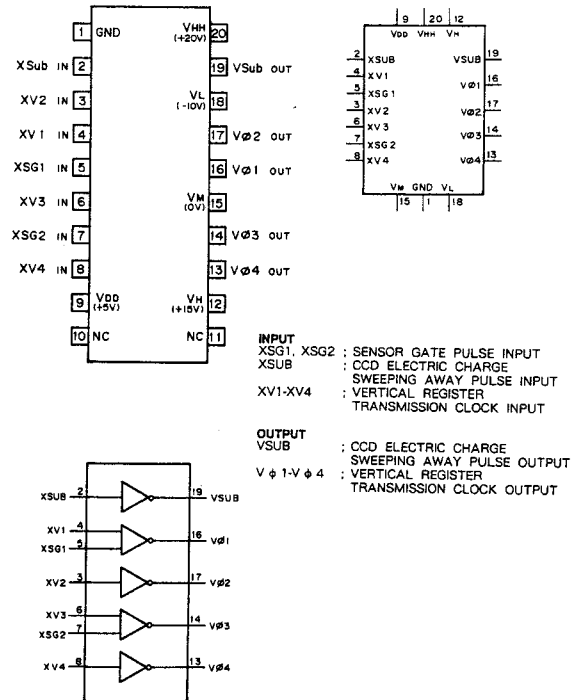
N : NTSC  
P : PAL  
PM : PALM  
S : SECAM

**INPUT**  
4fsc IN : 4fsc INPUT  
CL IN : CLOCK INPUT  
EXT : SYNC MODE SELECT  
(L : INTERNAL/H : EXTERNAL)  
HRI : H RESET  
LALTRI : LINE CHANGE RESET  
MODE1,2 : SYSTEM SELECT  
VRI : V RESET

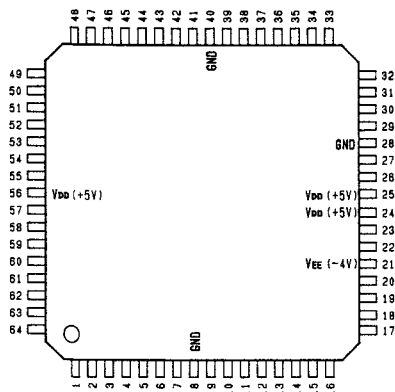
**OUTPUT**  
4fsc OUT : 4fsc OUTPUT  
CL OUT : CLOCK OUTPUT  
HCOM : PHASE COMPARE  
O2FH : 2FH OUTPUT  
OBF/COLB : BURST FLAG/COLOR BLANKING  
OBLK : COMPOSITE BLANKING  
OFH : H FREQUENCY  
OFLD : EVEN, ODD  
OFLD1 : FIELD1  
OHD : H DRIVE  
OLALT : LINE CHANGE  
OSC : SUBCARRIER  
OSYNC : COMPOSITE SYNC  
OVD : V DRIVE



CXD1250N (SONY) FLAT PACKAGE  
C-MOS VERTICAL CLOCK DRIVER FOR CCD  
- TOP VIEW -



CXD1256AR (SONY) FLAT PACKAGE  
TIMING GENERATOR FOR CCD CAMERA  
- TOP VIEW -

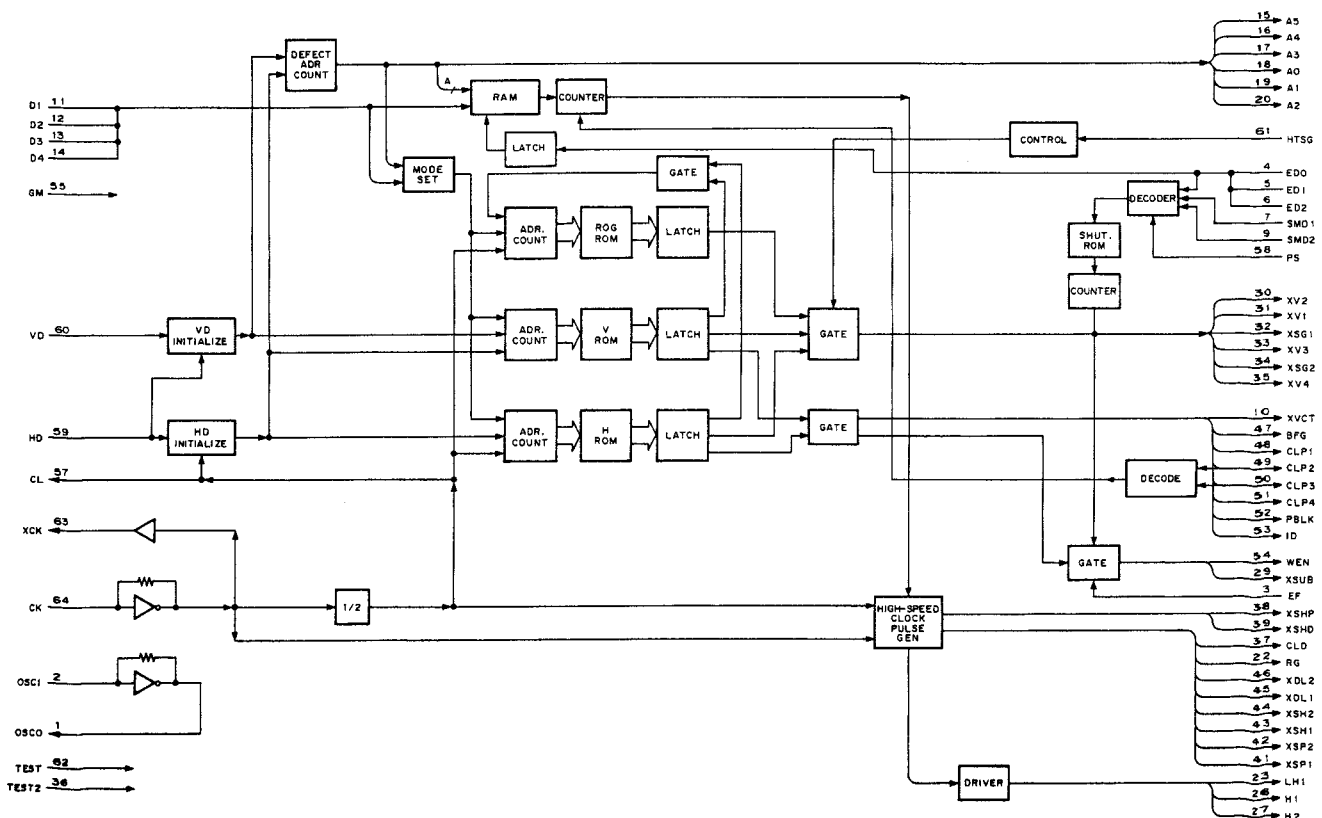


| PIN | I/O | SYMBOL | PIN | I/O | SYMBOL | PIN | I/O | SYMBOL | PIN | I/O | SYMBOL |
|-----|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|--------|
| 1   | O   | OSC0   | 17  | O   | A3     | 33  | O   | XV3    | 49  | I/O | CLP2   |
| 2   | I   | OSC1   | 18  | O   | A0     | 34  | O   | XSG2   | 50  | I/O | CLP3   |
| 3   | I   | EF     | 19  | O   | A1     | 35  | O   | XV4    | 51  | O   | CLP4   |
| 4   | I   | ED0    | 20  | O   | A2     | 36  | I   | TEST2  | 52  | O   | PBLK   |
| 5   | I   | ED1    | 21  | -   | VEE    | 37  | O   | CLD    | 53  | O   | ID     |
| 6   | I   | ED2    | 22  | O   | R6     | 38  | O   | XSHP   | 54  | O   | VEN    |
| 7   | I   | SMD1   | 23  | -   | LH1    | 39  | O   | XSHD   | 55  | I   | GM     |
| 8   | -   | GND    | 24  | -   | VDD    | 40  | -   | GND    | 56  | -   | VDD    |
| 9   | I   | SMD2   | 25  | -   | VDD    | 41  | O   | XSP1   | 57  | O   | CL     |
| 10  | O   | XVCT   | 26  | O   | H1     | 42  | O   | XSP2   | 58  | I   | PS     |
| 11  | I   | D1     | 27  | O   | H2     | 43  | O   | XSH1   | 59  | I   | HD     |
| 12  | I   | D2     | 28  | -   | GND    | 44  | O   | XSH2   | 60  | I   | VD     |
| 13  | I   | D3     | 29  | O   | XSUB   | 45  | O   | XDL1   | 61  | I   | HTSG   |
| 14  | I   | D4     | 30  | O   | XV2    | 46  | O   | XDL2   | 62  | I   | TEST   |
| 15  | O   | A5     | 31  | O   | XV1    | 47  | O   | BFG    | 63  | O   | XCK    |
| 16  | O   | A4     | 32  | O   | XSG1   | 48  | O   | CLP1   | 64  | I   | CK     |

| INPUT       | SYMBOL                                                                         | DESCRIPTION |
|-------------|--------------------------------------------------------------------------------|-------------|
| CK          | 8fsc CLOCK                                                                     |             |
| D1          | WHEN EXTERNAL ROM IS USED, DATA INPUT. WHEN NOT USED, L; NO ERROR COMPENSATION |             |
| D2          | WHEN EXTERNAL ROM IS USED, DATA INPUT. WHEN NOT USED, L; COLOR H; S/W          |             |
| D3          | WHEN EXTERNAL ROM IS USED, DATA INPUT. WHEN NOT USED, FIXED TO LOW             |             |
| D4          | WHEN EXTERNAL ROM IS USED, DATA INPUT. WHEN NOT USED, L; NTSC H; PAL           |             |
| ED0         | SHUTTER SPEED SET. WHEN SERIAL MODE, STROBE INPUT.                             |             |
| ED1         | SHUTTER SPEED SET. WHEN SERIAL MODE, CLOCK INPUT.                              |             |
| ED2         | SHUTTER SPEED SET. WHEN SERIAL MODE, DATA INPUT.                               |             |
| EF          | DATA INPUT METHOD CHANGE FOR ERROR COMPENSATION                                |             |
| GM          | H: EXTERNAL ROM USED                                                           |             |
| HD          | L: SERIAL INPUT FROM MICROPROCESSOR                                            |             |
| HTSG        | L: FOR ANALOG SIGNAL, H: FOR DIGITAL SIGNAL                                    |             |
| XSG1, XSG2  | HORIZONTAL DRIVE                                                               |             |
| XSG1, XSG2  | CONTROL                                                                        |             |
| XSG1, XSG2  | H: XSG1 AND 2 GENERATED                                                        |             |
| XSG1, XSG2  | L: XSG1 AND 2 STOPPED                                                          |             |
| OSC1        | INVERTER INPUT FOR OSCILLATION                                                 |             |
| PS          | ELECTRONIC SHUTTER SPEED INPUT METHOD CHANGE                                   |             |
| H           | PARALLEL INPUT                                                                 |             |
| L           | SERIAL INPUT                                                                   |             |
| SMD1, SMD2  | SHUTTER MODE SET                                                               |             |
| TEST, TEST2 | FOR TEST (NORMALLY Low)                                                        |             |
| VD          | VERTICAL DRIVE                                                                 |             |

| OUTPUT     | SYMBOL                                       | DESCRIPTION |
|------------|----------------------------------------------|-------------|
| A5-A0      | ADDRESS FOR EXTERNAL ROM                     |             |
| BFG        | PULSE FOR ENCODER-CHROMA MODULATOR           |             |
| CL         | WHEN GM = H, ERROR POSITION SPECIFYING PULSE |             |
| CLD        | 4fsc CLOCK                                   |             |
| CLP1, CLP4 | 4fsc CLOCK                                   |             |
| CLP1, CLP4 | PULSE FOR CLAMP                              |             |
| H1, H2     | CLOCK FOR CCD HORIZONTAL REGISTER DRIVE      |             |
| ID         | LINE IDENTIFICATION                          |             |
| OSC0       | INVERTER OUTPUT FOR OSCILLATION              |             |
| PBLK       | BLANKING CLEANING PULSE                      |             |
| RG         | RESET GATE PULSE                             |             |
| WEN        | WRITE ENABLE (ONLY WHEN LOW SHUTTER SPEED)   |             |
| XCK        | 8fsc CLOCK                                   |             |
| XDL1, XDL2 | CLOCK FOR DELAY LINE                         |             |
| XSG1, XSG2 | CCD SENSOR ELECTRIC CHARGE READ OUT PULSE    |             |
| XSH1, XSH2 | SWITCHING SAMPLE HOLD PULSE                  |             |
| XSHD       | PULSE FOR DATA SAMPLE HOLD                   |             |
| XSHP       | PRECHARGE LEVEL SAMPLE HOLD PULSE            |             |
| XSP1, XSP2 | CHROMA SEPARATION SAMPLE HOLD PULSE          |             |
| XSUB       | ELECTRIC CHARGE DISCHARGING PULSE            |             |
| XV1-XV4    | VERTICAL SCANNING CLOCK                      |             |
| XVCT       | POWER CONTROL FOR EXTERNAL ROM               |             |

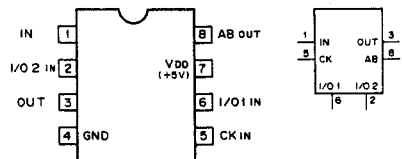
INPUT/OUTPUT  
CLP2, CLP3 : PULSE FOR CLAMP. WHEN GM = H, STANDBY MODE SWITCHING INPUT



## CXL5504M (SONY)

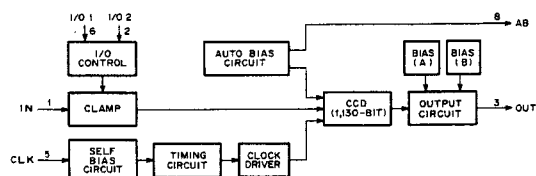
## C-MOS CCD 1H DELAY LINE

- TOP VIEW -



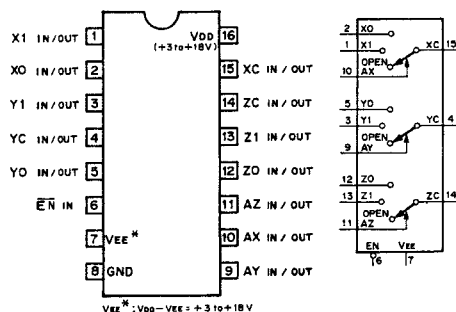
AB ; AUTO BIAS DC OUTPUT  
 CK ; CLOCK INPUT  
 IN ; SIGNAL INPUT

I/O 1, I/O 2 ; I/O CONTROL 1, 2 INPUTS  
 OUT ; SIGNAL OUTPUT



HD14053BFP (HITACHI) FLAT PACKAGE  
 MC14053BF (MOTOROLA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULPLEXERS  
 - TOP VIEW -

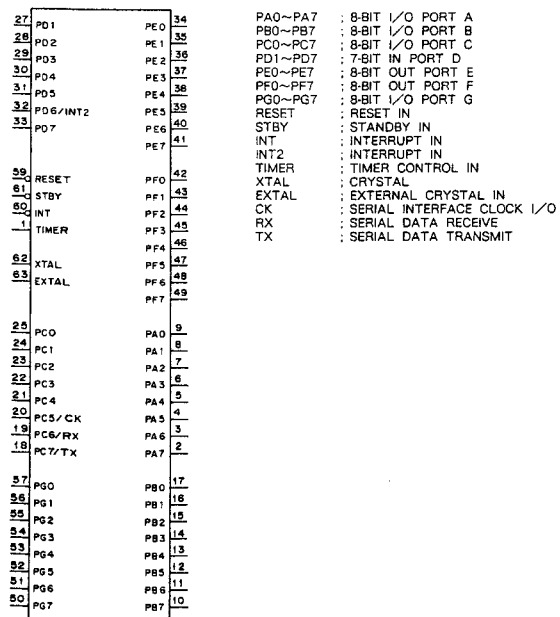
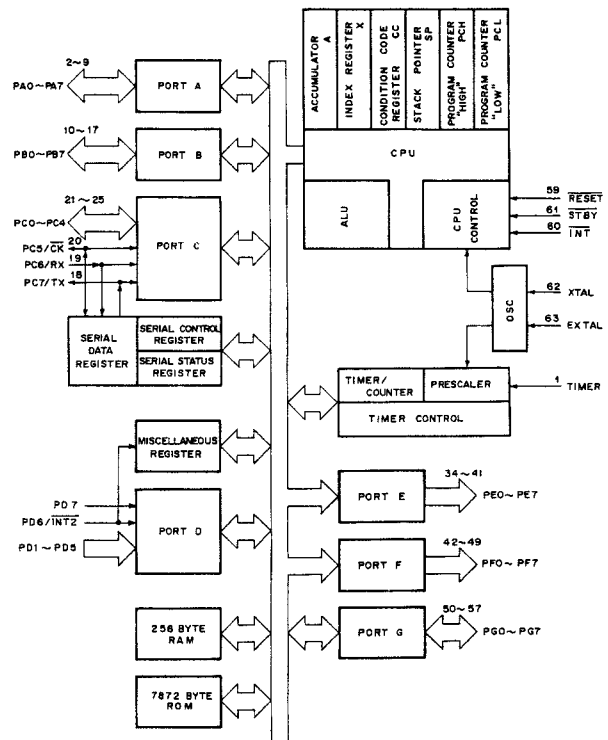
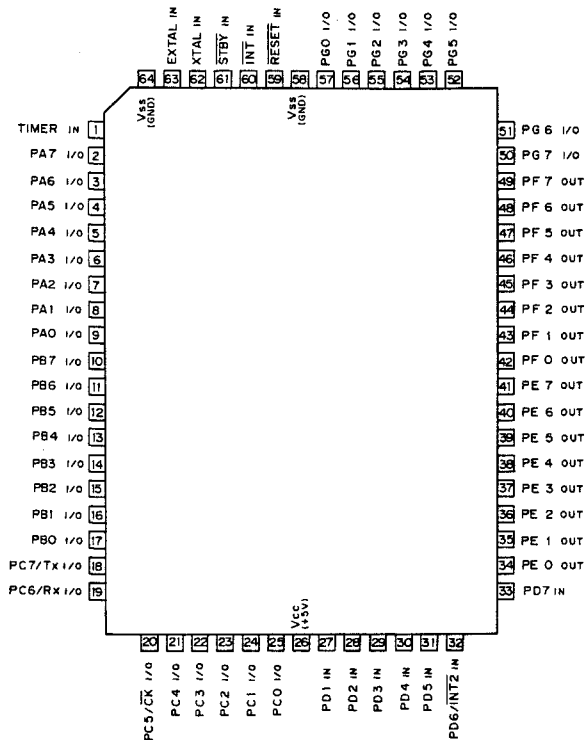


VEE\*: VDD - VEE = +3 to +18V

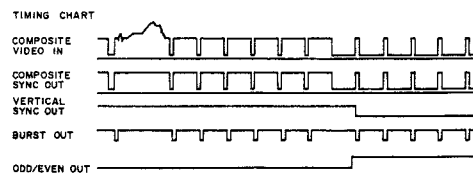
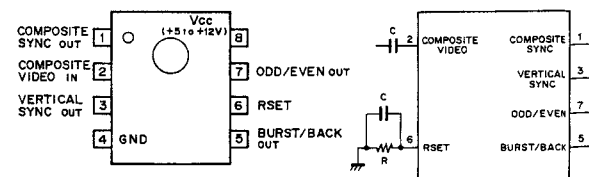
0; LOW LEVEL  
 1; HIGH LEVEL  
 X; DON'T CARE.

| CONT. INPUTS | ON      |
|--------------|---------|
| EN A (X,Y,Z) | CHANNEL |
| 0            | 0       |
| 1            | 1       |
| X            | OPEN    |

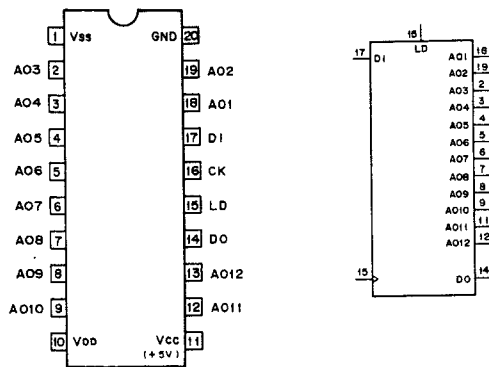
HD63B05Y0E64F (HITACHI) FLAT PACKAGE  
C-MOS 8-BIT MICROPROCESSOR UNIT  
- TOP VIEW -



LM1881M (NS) FLAT PACKAGE  
VIDEO SYNC SEPARATOR  
- TOP VIEW -

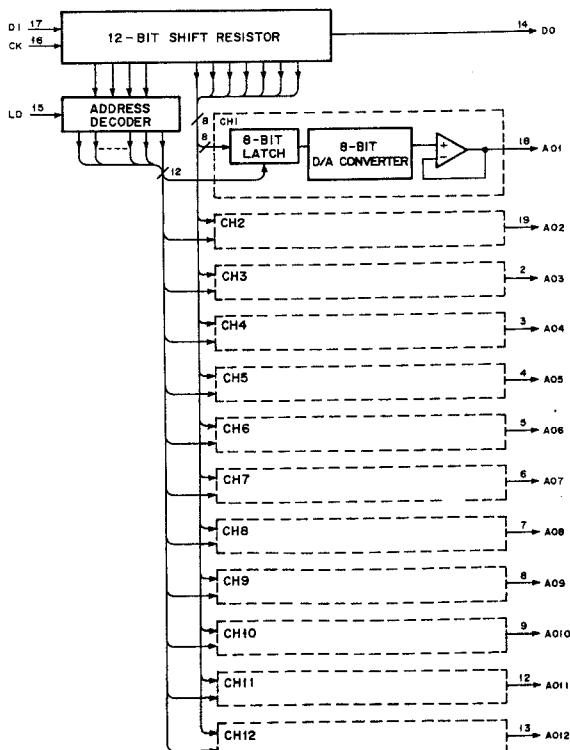


M62352GP (MITSUBISHI) FLAT PACKAGE  
C-MOS 8-BITx12 CHANNEL D/A CONVERTER  
(WITH BUFFER OPERATIONAL AMPLIFIER)  
- TOP VIEW -

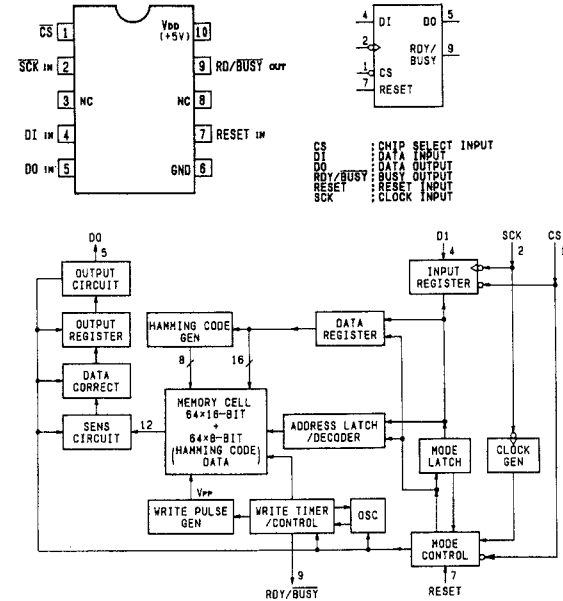


AO1 - AO12: 8-BIT D/A OUTPUT  
CK : CLOCK INPUT  
DI : SERIAL DATA INPUT  
DO : DATA OUTPUT

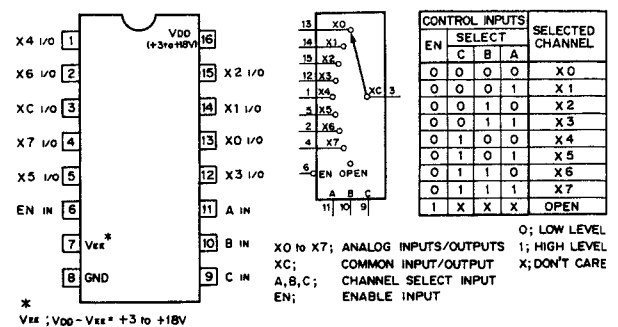
NOTE:  
-  $3.5V < V_{DD} < V_{CC}$   
-  $3.5V < V_{SS} < V_{CC}$



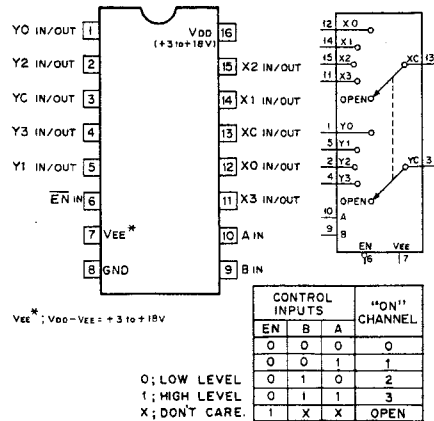
M6M80011AFP (MITSUBISHI) FLAT PACKAGE  
C-MOS 1k (64x16) BIT ERASABLE PROM  
- TOP VIEW -



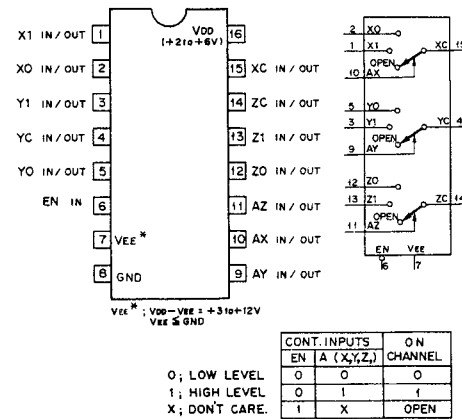
MC14051BF (MOTOROLA) FLAT PACKAGE  
C-MOS 8-CHANNEL ANALOG MULTIPLEXER/DEMULPLEXER  
- TOP VIEW -



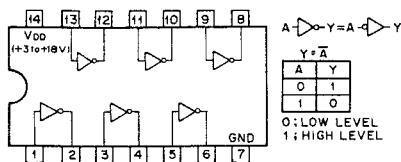
MC14052BF (MOTOROLA) FLAT PACKAGE  
C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS  
- TOP VIEW -



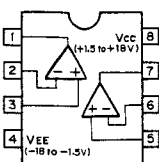
MC74HC4053F (MOTOROLA) FLAT PACKAGE  
C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER  
- TOP VIEW -



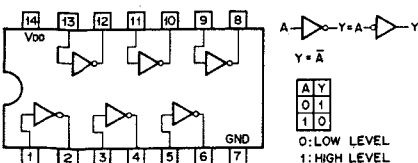
MC14069UBF (MOTOROLA)  
C-MOS INVERTER  
- TOP VIEW -



MC34182M (MOTOROLA) FLAT PACKAGE  
TL062CPS (TI) FLAT PACKAGE  
OPERATIONAL AMPLIFIER (JFET INPUT)  
- TOP VIEW -



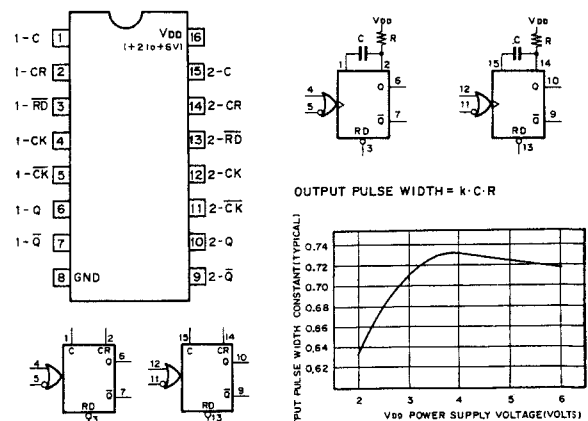
MC74AC04M (MOTOROLA) FLAT PACKAGE  
C-MOS HEX INVERTERS  
- TOP VIEW -



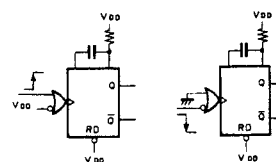
NOTE:

| TYPE          | VDD           |
|---------------|---------------|
| 74HCT04 TYPE  | +5V           |
| TC74AC04 TYPE | +2 to +5.5V   |
| 74ACT04 TYPE  | +4.5 to +5.5V |
| OTHER TYPES   | +2 to +6V     |

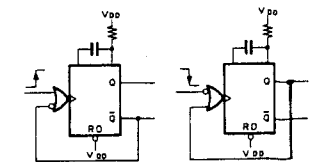
TC74HC4538AF (TOSHIBA) FLAT PACKAGE  
C-MOS DUAL RETRIGGERABLE / NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR  
- TOP VIEW -



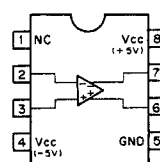
RETRIGGERABLE M.M.V.



NON-RETRIGGERABLE M.M.V.

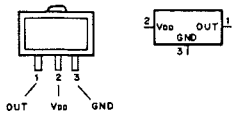


NJM360M (JRC) FLAT PACKAGE  
HIGH SPEED VOLTAGE COMPARATOR (TTL OUTPUT)  
- TOP VIEW -

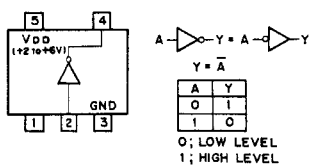




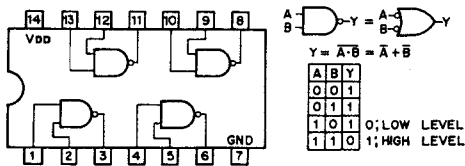
S-8054ALR-LN (SEIKO)  
CMOS VOLTAGE DETECTOR  
- TOP VIEW -



SC7S04F (MOTOROLA) FLAT PACKAGE  
TC7S04F (TOSHIBA) FLAT PACKAGE  
CMOS INVERTER  
- TOP VIEW -



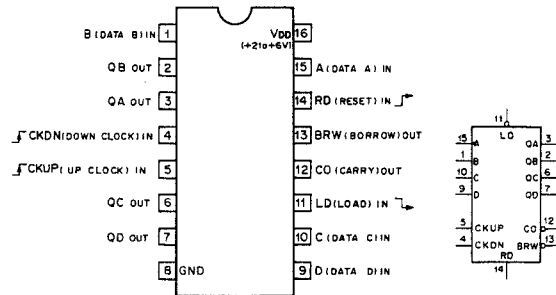
SN74HC00ANS (TI) FLAT PACKAGE  
CMOS QUAD 2-INPUT NAND GATES  
- TOP VIEW -



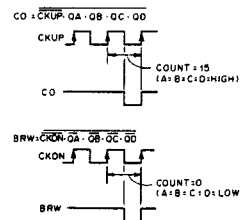
NOTE:

| TYPE          | V <sub>DD</sub> |
|---------------|-----------------|
| TC74AC00 TYPE | +2 to +5.5V     |
| MC74HCT00N    | +5V             |
| 74ACT00 TYPE  | +4.5 to +5.5V   |
| OTHER TYPES   | +2 to +6V       |

SN74HC193ANS (TI) FLAT PACKAGE  
CMOS PRESETTABLE SYNCHRONOUS 4-BIT UP/DOWN COUNTER  
- TOP VIEW -



| CONTROL INPUT |    |      |      | MODE          |
|---------------|----|------|------|---------------|
| RD            | LD | CKUP | CKDN |               |
| 1             | X  | X    | X    | RESET TO ZERO |
| 0             | 0  | X    | X    | PRESET        |
| 0             | 1  | 1    | 1    | UP COUNT      |
| 0             | 1  | 1    | 0    | DOWN COUNT    |
| 0             | 1  | 1    | 1    | NO COUNT      |

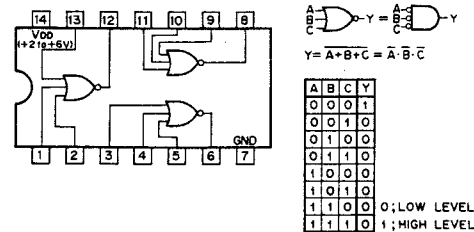


| COUNT | OUTPUT |    |    |    |
|-------|--------|----|----|----|
|       | QD     | QC | QB | QA |
| 0     | 0      | 0  | 0  | 0  |
| 1     | 0      | 0  | 0  | 1  |
| 2     | 0      | 0  | 1  | 0  |
| 3     | 0      | 0  | 1  | 1  |
| 4     | 0      | 1  | 0  | 0  |
| 5     | 0      | 1  | 0  | 1  |
| 6     | 0      | 1  | 1  | 0  |
| 7     | 0      | 1  | 1  | 1  |
| 8     | 1      | 0  | 0  | 0  |
| 9     | 1      | 0  | 0  | 1  |
| 10    | 1      | 0  | 1  | 0  |
| 11    | 1      | 0  | 1  | 1  |
| 12    | 1      | 1  | 0  | 0  |
| 13    | 1      | 1  | 0  | 1  |
| 14    | 1      | 1  | 1  | 0  |
| 15    | 1      | 1  | 1  | 1  |

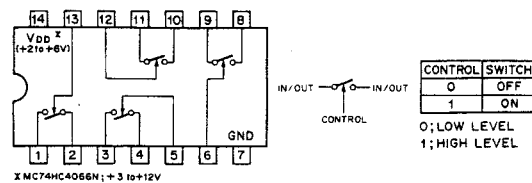
UP COUNT  
DOWN COUNT

0; LOW LEVEL  
1; HIGH LEVEL  
X; DON'T CARE

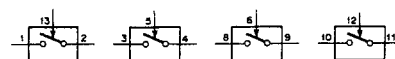
SN74HC27ANS (TI) FLAT PACKAGE  
CMOS 3-LINE POSITIVE-NOR GATE  
- TOP VIEW -



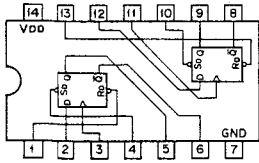
SN74HC4066NS (TI) FLAT PACKAGE  
CMOS BILATERAL ANALOG SWITCH  
- TOP VIEW -



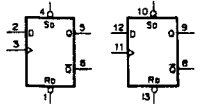
X MC74HC4066N; +3 to +12V



## SN74HC74ANS (TI) FLAT PACKAGE

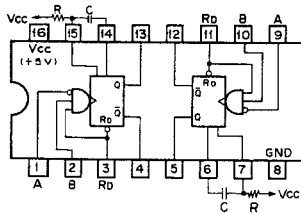
C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET  
- TOP VIEW -

| INPUTS | OUTPUTS |
|--------|---------|
| Set    | Qn      |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |

0; LOW LEVEL  
1; HIGH LEVEL  
X; DON'T CARE

| TYPE           | VDD           |
|----------------|---------------|
| TC74HC74AF     | +5V           |
| TC74ACT74 TYPE | +2 to +5.5V   |
| 74ACT74 TYPE   | +4.5 to +5.5V |
| OTHER TYPES    | +2 to +6V     |

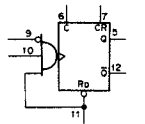
## SN74LS123NS (TI) FLAT PACKAGE

TTL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR WITH DIRECT RESET  
- TOP VIEW -

| INPUTS | OUTPUTS |
|--------|---------|
| Rd     | Q       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |
| 1      | 0       |
| 0      | 1       |

0; LOW LEVEL  
1; HIGH LEVEL  
X; DON'T CARE

OUTPUT PULSE WIDTH



$$T_{123} = 0.28 \left( 1 + \frac{700}{R} \right) CR$$

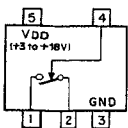
$$T_{123} = 0.33 \left( 1 + \frac{700}{R} \right) CR$$

$$T_{123} = 0.25 \left( 1 + \frac{700}{R} \right) CR$$

$$T_{123} = 0.29 \left( 1 + \frac{700}{R} \right) CR$$

$$T_{123} = 0.45 CR$$

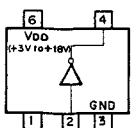
## TC4S66F (TOSHIBA)

C-MOS BILATERAL ANALOG SWITCH  
- TOP VIEW -IN/OUT  
CONTROL

| CONTROL SWITCH |
|----------------|
| 0              |
| 1              |
| 0              |
| 1              |
| 0              |
| 1              |
| 0              |
| 1              |
| 0              |
| 1              |
| 0              |
| 1              |
| 0              |
| 1              |

0; LOW LEVEL  
1; HIGH LEVEL

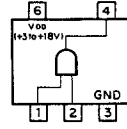
## TC4S69F (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER BUFFER  
- TOP VIEW -IN/OUT  
CONTROL

| CONTROL SWITCH |
|----------------|
| 0              |
| 1              |
| 0              |
| 1              |
| 0              |
| 1              |
| 0              |
| 1              |
| 0              |
| 1              |
| 0              |
| 1              |
| 0              |
| 1              |

0; LOW LEVEL  
1; HIGH LEVEL

## TC4S81F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT AND GATE  
- TOP VIEW -A  
B  
Y = A AND B

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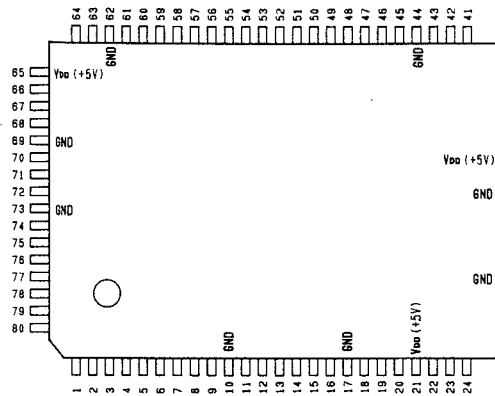
Y = A AND B

Y = A AND B

Y = A AND B

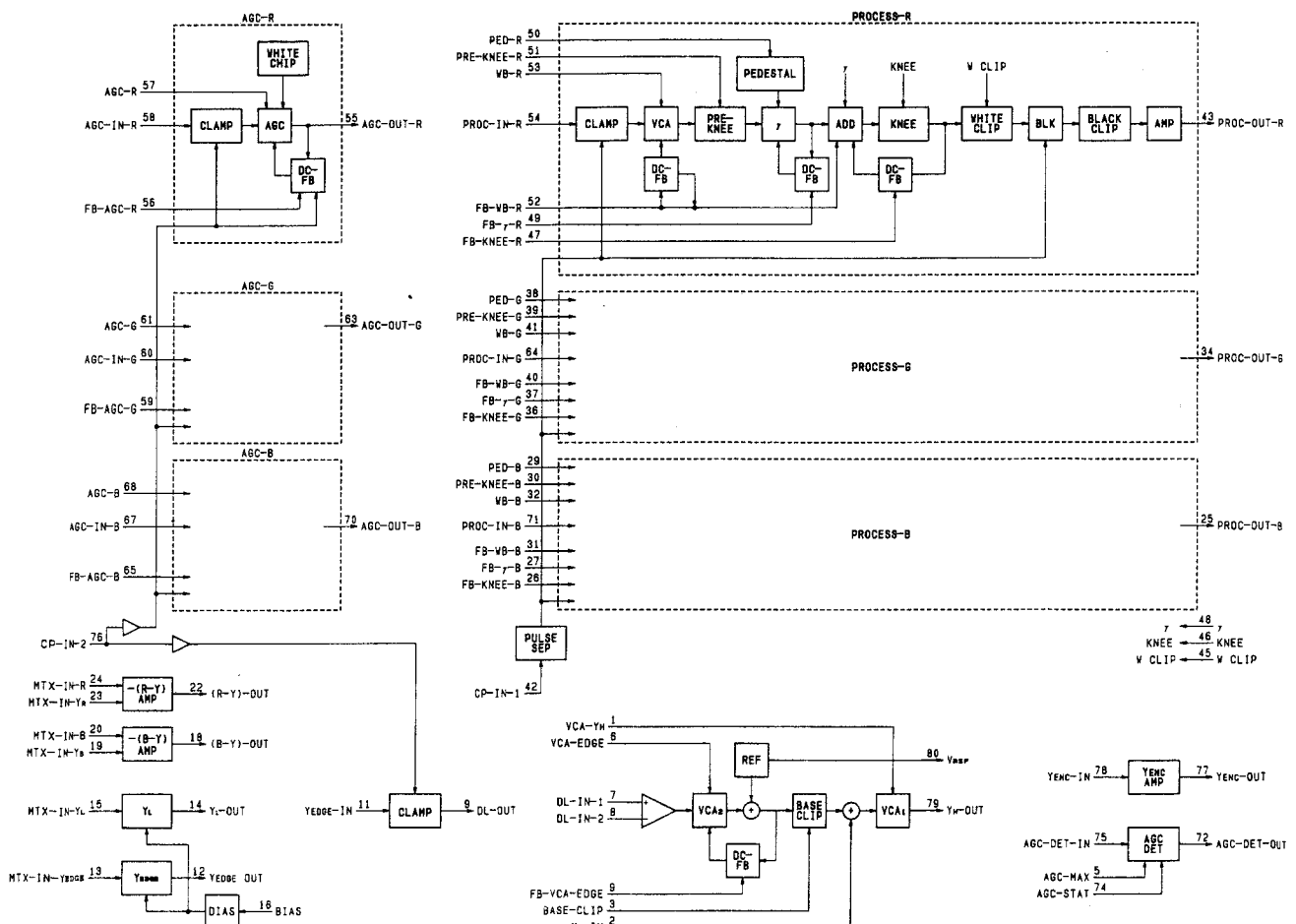
Y = A AND B

UPC2372GF-3B9 (NEC) FLAT PACKAGE  
3-CH PROCESS AMP & AGC  
- TOP VIEW -



| PIN No. | I/O | SYMBOL       | PIN No. | I/O | SYMBOL     | PIN No. | I/O | SYMBOL     | PIN No. | I/O | SYMBOL      |
|---------|-----|--------------|---------|-----|------------|---------|-----|------------|---------|-----|-------------|
| 1       | I   | VCA-YH       | 21      | -   | VDD        | 41      | I   | WB-G       | 61      | I   | AGC-G       |
| 2       | I   | YL-IN        | 22      | O   | (R-Y)-OUT  | 42      | I   | CP-IN-1    | 62      | -   | GND         |
| 3       | I   | BASE-CLIP    | 23      | I   | MTX-IN-YR  | 43      | O   | PROC-OUT-R | 63      | O   | AGC-OUT-G   |
| 4       | I   | FB-VCA-EDGE  | 24      | I   | MTX-IN-R   | 44      | -   | GND        | 64      | I   | PROC-ING    |
| 5       | I   | AGC-MAX      | 25      | O   | PROC-OUT-B | 45      | I   | WCLIP      | 65      | I   | FB-AGC-B    |
| 6       | I   | VCA-EDGE     | 26      | I   | FB-KNEE-B  | 46      | I   | KNEE       | 66      | -   | VDD         |
| 7       | I   | DL-IN1       | 27      | I   | FB-Y-B     | 47      | I   | FB-KNEE-R  | 67      | I   | AGC-IN-B    |
| 8       | I   | DL-IN2       | 28      | -   | GND        | 48      | I   | Y          | 68      | I   | AGC-B       |
| 9       | O   | DL-OUT       | 29      | I   | PED-B      | 49      | I   | FB-Y-R     | 69      | -   | GND         |
| 10      | -   | GND          | 30      | I   | Pre-KNEE-B | 50      | I   | PED-R      | 70      | O   | AGC-OUT-B   |
| 11      | I   | YEDGE IN     | 31      | I   | FB-WB-B    | 51      | I   | Pre-KNEE-R | 71      | I   | PROC-IN-B   |
| 12      | O   | YEDGE OUT    | 32      | I   | WB-B       | 52      | I   | FB-WB-R    | 72      | O   | AGC-DET-OUT |
| 13      | I   | MTX-IN-YEDGE | 33      | -   | GND        | 53      | I   | WB-R       | 73      | -   | GND         |
| 14      | O   | YL-OUT       | 34      | O   | PROC-OUT-G | 54      | I   | PROC-IN-R  | 74      | I   | AGC STAT    |
| 15      | I   | MIX-IN-YL    | 35      | -   | VDD        | 55      | O   | AGC-OUT-R  | 75      | I   | AGC-DET-IN  |
| 16      | O   | BIAS         | 36      | I   | FB-KNEE-G  | 56      | I   | FB-AGC-R   | 76      | I   | CP-IN-2     |
| 17      | -   | GND          | 37      | I   | FB-Y-G     | 57      | I   | AGC-R      | 77      | O   | YENC-OUT    |
| 18      | O   | (B-Y)-OUT    | 38      | I   | PED-G      | 58      | I   | AGC-IN-R   | 78      | I   | YENC-IN     |
| 19      | I   | MTX-IN-YB    | 39      | I   | Pre-KNEE-G | 59      | I   | FB-AGC-G   | 79      | O   | Y-OUT       |
| 20      | I   | MTX-IN-B     | 40      | I   | FB-WB-G    | 60      | I   | AGC-ING    | 80      | O   | VREF        |

(VDD = +5V)



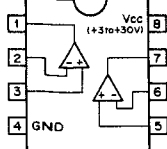
**INPUT**

AGC-STAT : AGC THRESHOLD CONTROL  
 AGC-B : AGC GAIN CONTROL FOR B-CH  
 AGC-DET-IN : AGC DETECT  
 AGC-G : AGC GAIN CONTROL FOR G-CH  
 AGC-IN-B : B-CH AGC  
 AGC-IN-G : G-CH AGC  
 AGC-IN-R : R-CH AGC  
 AGC-MAX : AGC MAX GAIN CONTROL  
 AGC-R : AGC GAIN CONTROL FOR R-CH  
 BASE-CLIP : BASE CLIP QUANTITY CONTROL FOR HORIZONTAL  
 EDGE COMPENSATION SIGNAL  
 CP-IN-1 : CLAMP PULSE/BLANKING PULSE  
 CP-IN-2 : CLAMP PULSE FOR AGC CIRCUIT  
 DL-IN1 : NON-INVERT INPUT FOR HORIZONTAL EDGE  
 COMPENSATION DIFFERENTIAL AMPLIFIER  
 DL-IN2 : INVERT INPUT FOR HORIZONTAL EDGE  
 COMPENSATION DIFFERENTIAL AMPLIFIER  
 FB-AGC-B : DC FEEDBACK FOR B-CH AGC  
 FB-AGC-G : DC FEEDBACK FOR G-CH AGC  
 FB-AGC-R : DC FEEDBACK FOR R-CH AGC  
 FB-KNEE-B : DC FEEDBACK FOR B-CH KNEE  
 FB-KNEE-G : DC FEEDBACK FOR G-CH KNEE  
 FB-KNEE-R : DC FEEDBACK FOR R-CH KNEE  
 FB-VCA-EDGE : CAPACITOR FOR DC FEEDBACK  
 FB-WB-B : DC FEEDBACK FOR B-CH WHITE BALANCE  
 FB-WB-G : DC FEEDBACK FOR G-CH WHITE BALANCE  
 FB-WB-R : DC FEEDBACK FOR R-CH WHITE BALANCE  
 FB-Y-B : DC FEEDBACK FOR B-CH Y  
 FB-Y-G : DC FEEDBACK FOR G-CH Y  
 FB-Y-R : DC FEEDBACK FOR R-CH Y  
 KNEE : KNEE CONTROL  
 MTX-IN-B : B-Y SIGNAL MATRIX INPUT  
 MTX-IN-R : R-Y SIGNAL MATRIX INPUT  
 MTX-IN-YB : B-Y SIGNAL MATRIX INPUT  
 MTX-IN-YEDGE : LUMINANCE SIGNAL MATRIX FOR HORIZONTAL  
 EDGE COMPENSATION  
 MTX-IN-YL : LUMINANCE SIGNAL MATRIX  
 MTX-IN-YR : R-Y SIGNAL MATRIX  
 PED-B : PEDESTAL CONTROL FOR B-CH  
 PED-G : PEDESTAL CONTROL FOR G-CH  
 PED-R : PEDESTAL CONTROL FOR R-CH  
 Pre-KNEE-B : Pre-KNEE CONTROL FOR B-CH  
 Pre-KNEE-G : Pre-KNEE CONTROL FOR G-CH  
 Pre-KNEE-R : Pre-KNEE CONTROL FOR R-CH  
 PROC-IN-B : B-CH PROCESS  
 PROC-IN-G : G-CH PROCESS  
 PROC-IN-R : R-CH PROCESS  
 VCA-EDGE : OUTPUT LEVEL CONTROL FOR HORIZONTAL EDGE  
 COMPENSATED LUMINANCE SIGNAL  
 VCA-YH : HORIZONTAL EDGE COMPENSATED OUTPUT  
 LEVEL CONTROL  
 WB-B : WHITE BALANCE CONTROL FOR B-CH  
 WB-G : WHITE BALANCE CONTROL FOR G-CH  
 WB-R : WHITE BALANCE CONTROL FOR R-CH  
 WCLIP : WHITE CLIP LEVEL CONTROL  
 YEDGE-IN : LUMINANCE SIGNAL FOR HORIZONTAL  
 EDGE COMPENSATION  
 YENC-IN : LUMINANCE SIGNAL AMPLIFIER  
 YL-IN : INPUT FOR LUMINANCE SIGNAL  
 Y : Y CONTROL

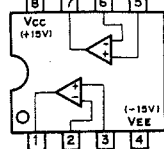
**OUTPUT**

AGC-DET-OUT : AGC DETECT  
 AGC-OUT-B : B-CH AGC  
 AGC-OUT-G : G-CH AGC  
 AGC-OUT-R : R-CH AGC  
 BIAS : BIAS  
 DL-OUT : HORIZONTAL EDGE COMPENSATION SIGNAL FOR  
 LUMINANCE SIGNAL  
 PROC-OUT-B : B-CH PROCESS  
 PROC-OUT-G : G-CH PROCESS  
 PROC-OUT-R : R-CH PROCESS  
 VREF : VREF (2.0V)  
 YEDGE-OUT : MATRIX OF LUMINANCE SIGNAL FOR HORIZONTAL  
 EDGE COMPENSATION  
 YENC-OUT : LUMINANCE SIGNAL AMPLIFIER  
 YH-OUT : OUTPUT OF APARTURE COMPENSATION CIRCUIT  
 YL-OUT : LUMINANCE SIGNAL MATRIX OUTPUT  
 (B-Y)-OUT : B-Y SIGNAL MATRIX  
 (R-Y)-OUT : R-Y SIGNAL MATRIX

UPC358G2 (NEC) FLAT PACKAGE  
 DUAL OPERATIONAL AMPLIFIERS  
 - TOP VIEW -

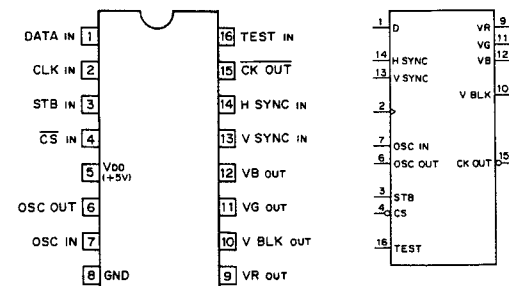


UPC4558G2 (NEC) FLAT PACKAGE  
 DUAL OPERATIONAL AMPLIFIER  
 - TOP VIEW -

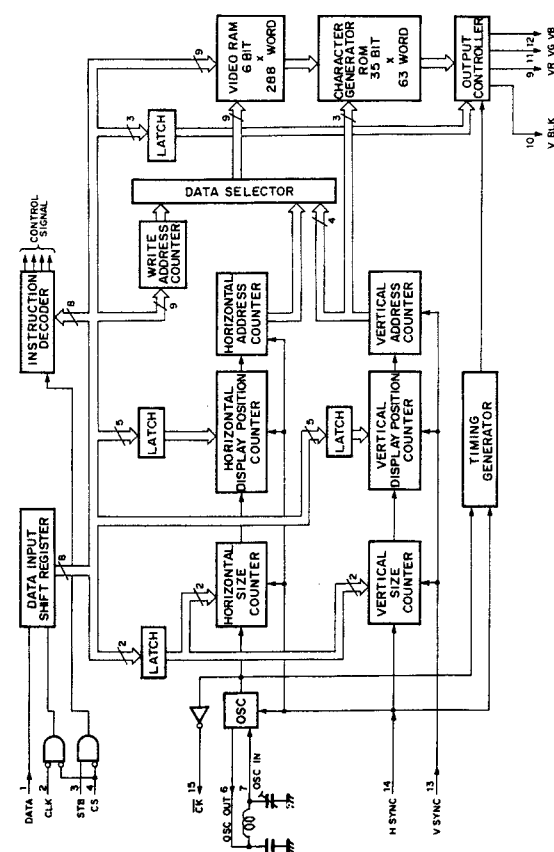


UPD6142G-101 (NEC) FLAT PACKAGE

C-MOS 8-BIT SERIAL INPUT CHARACTER DISPLAY  
 - TOP VIEW -



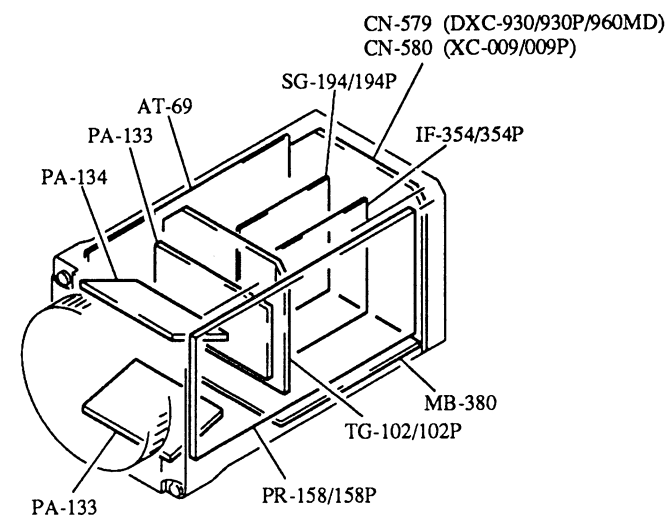
D: DATA INPUT  
 CK OUT: EQUAL TO OUTPUT OF OSC OUT  
 CLK: CLOCK INPUT  
 CS: CHIP SELECT INPUT  
 H SYNC: H SYNC INPUT  
 OSC IN, OUT: EXTERNAL TERMINAL FOR OSC  
 STB: STROBE INPUT  
 TEST: TEST CLOCK INPUT  
 VB: BLUE CHARACTER DATA OUTPUT  
 V BLK: V BLANKING OUTPUT  
 VG: GREEN CHARACTER DATA OUTPUT  
 VR: RED CHARACTER DATA OUTPUT  
 V SYNC: V SYNC INPUT



# SECTION C

## SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS

### BOARD LAYOUT



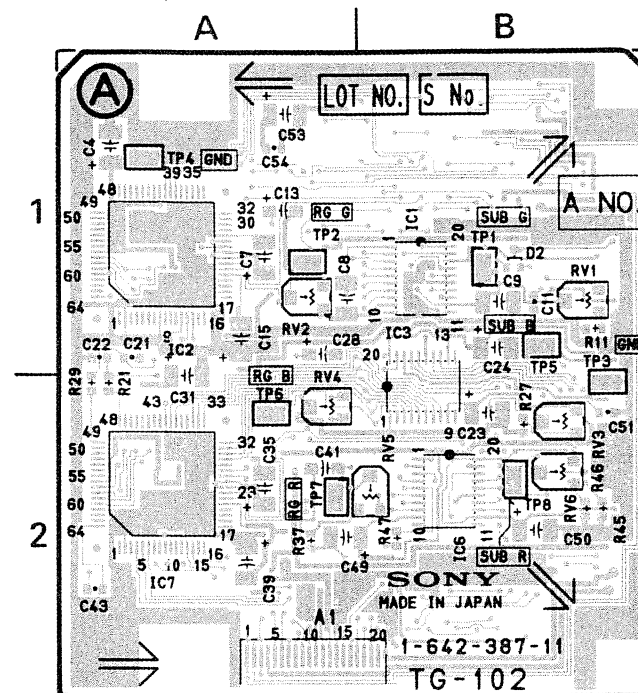
DXC-930/930P  
DXC-960MD  
XC-009/009P

C-1

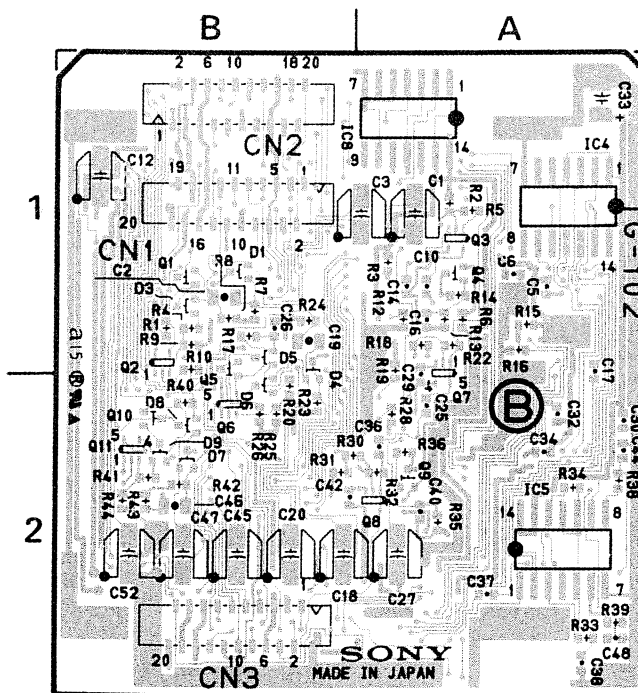
C-2

A | B | C | D | E | F | G | H

**TG-102/102P BOARD**



1-642-367-11, 12, 13 COMPONENT SIDE



1-642-387-11, 12, 13 SOLDERING SIDE

TG-102/102P (1-642-387-11, 12, 13)

|     |     |
|-----|-----|
| CN1 | B-1 |
| CN2 | B-1 |
| CN3 | B-2 |

|    |     |
|----|-----|
| D1 | B-1 |
| D2 | B-1 |
| D3 | B-1 |
| D4 | B-1 |
| D5 | B-1 |
| D6 | B-1 |
| D7 | B-2 |
| D8 | B-2 |
| D9 | B-2 |

|     |     |
|-----|-----|
| IC1 | B-1 |
| IC2 | A-1 |
| IC3 | B-1 |
| IC4 | A-1 |
| IC5 | A-2 |
| IC6 | B-2 |
| IC7 | A-2 |
| IC8 | A-1 |

|     |     |
|-----|-----|
| Q1  | B-1 |
| Q2  | B-1 |
| Q3  | A-1 |
| Q5  | B-1 |
| Q6  | B-2 |
| Q7  | A-1 |
| Q8  | A-2 |
| Q9  | A-2 |
| Q10 | B-2 |
| Q11 | B-2 |

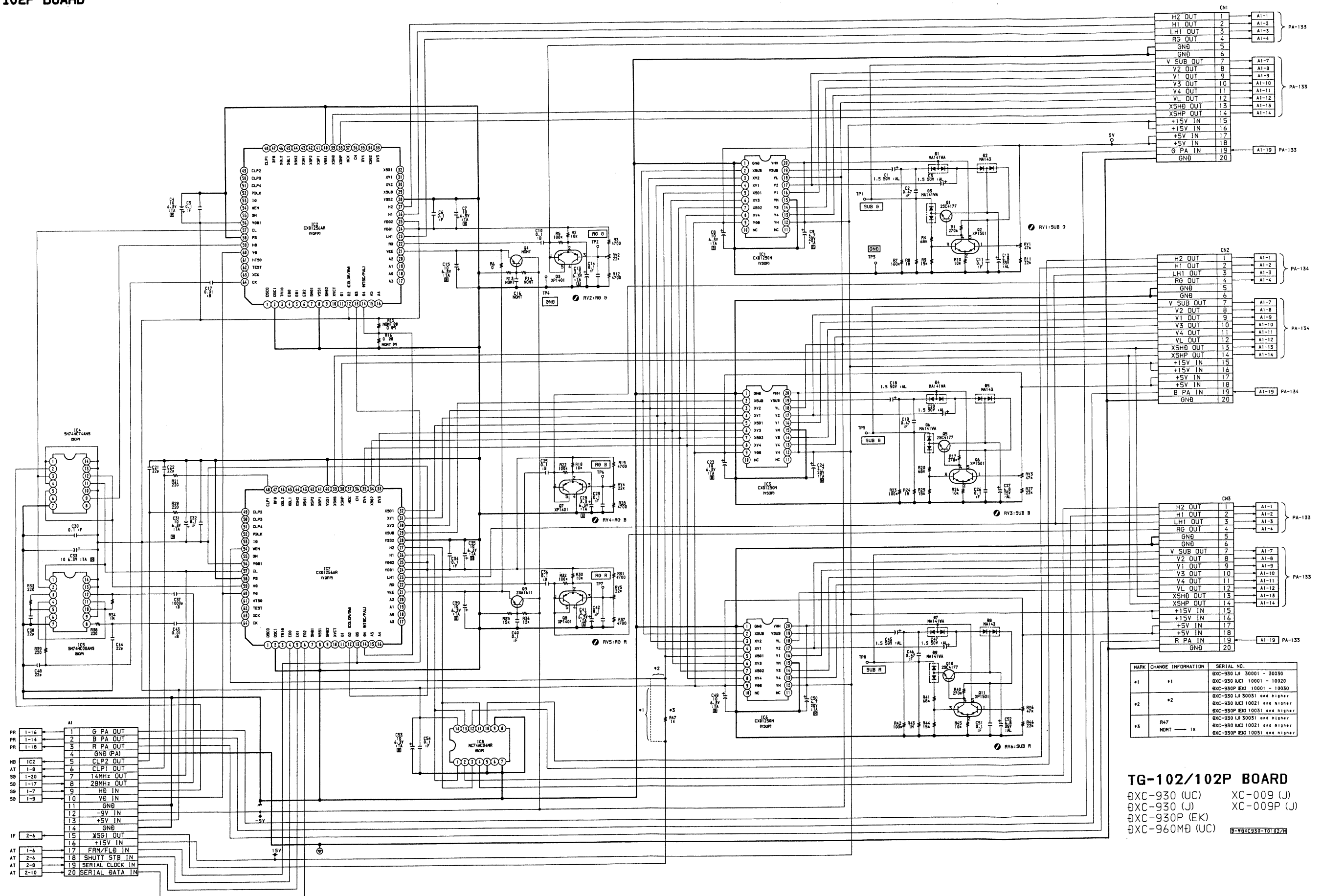
|     |     |
|-----|-----|
| RV1 | B-1 |
| RV2 | A-1 |
| RV3 | B-2 |
| RV4 | A-2 |
| RV5 | B-2 |
| RV6 | B-2 |

|     |     |
|-----|-----|
| TP1 | B-1 |
| TP2 | A-1 |
| TP3 | B-2 |
| TP4 | A-1 |
| TP5 | B-1 |
| TP6 | A-2 |
| TP7 | A-2 |
| TP8 | B-2 |

TG-102/102P

TG-102/102P

## TG-102/102P BOARD



DXC-930/930P  
 DXC-960MD  
 XC-009/009P

C-5

C-6

A

B

C

D

E

F

G

H

1

2

3

4

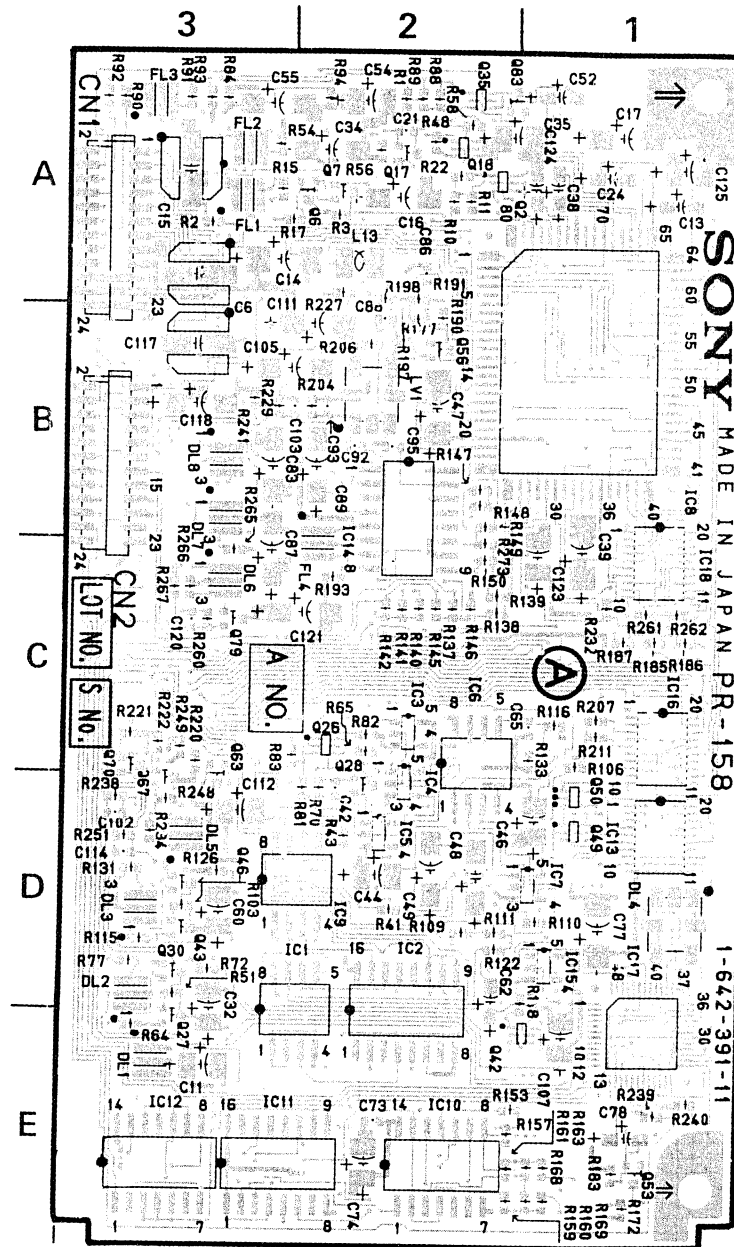
5

## PR-158/158P BOARD

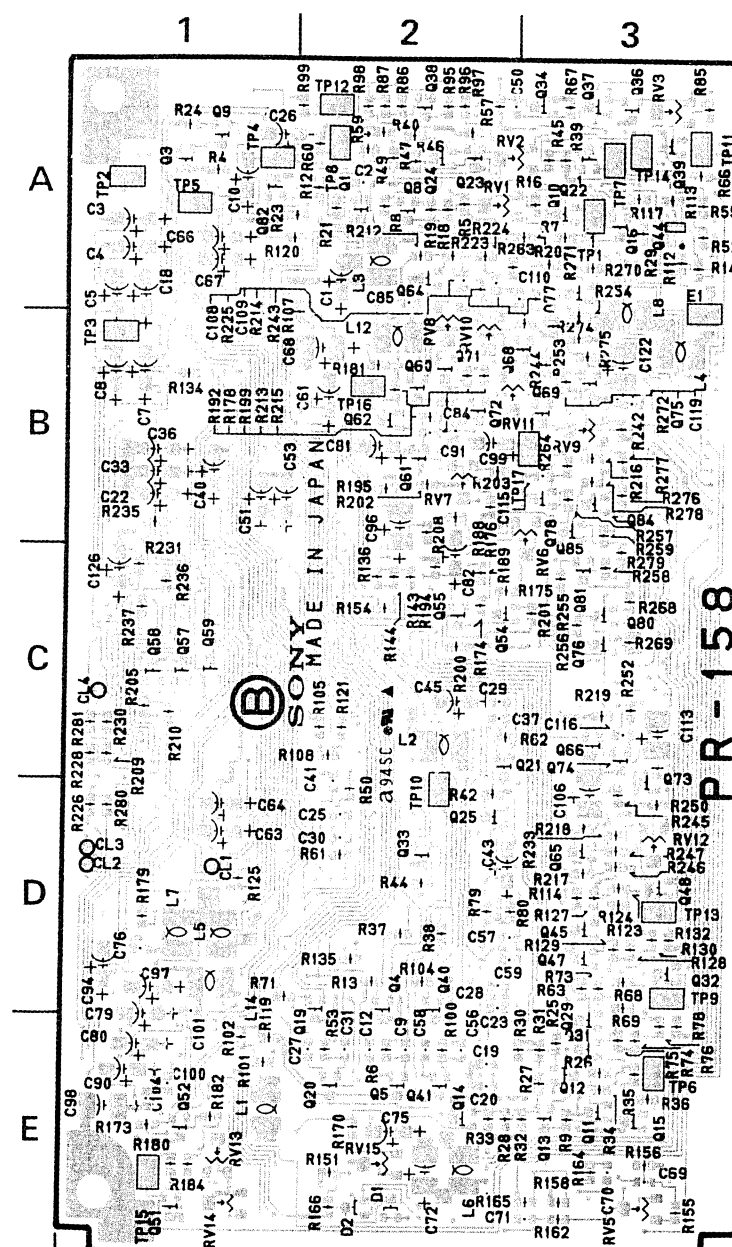
Serial No. 30001-30280 DXC-930 (J)  
 10001-10270 DXC-930 (UC)  
 10001-10480 DXC-930P (EK)  
 10001-10050 DXC-960MD (UC)  
 10001-10170 XC-009 (J)  
 10001-10060 XC-009P (EK)

## PR-158/158P (1-642-391-11)

|      |     |     |     |      |     |
|------|-----|-----|-----|------|-----|
| CN1  | A-3 | Q22 | A-2 | RV1  | A-2 |
| CN2  | B-3 | Q23 | A-2 | RV2  | A-2 |
|      |     | Q24 | A-2 | RV3  | A-3 |
| DL1  | D-3 | Q25 | C-2 | RV5  | D-3 |
| DL2  | D-3 | Q26 | C-2 | RV6  | B-2 |
| DL3  | D-3 | Q27 | D-3 | RV7  | B-2 |
| DL4  | D-1 | Q28 | C-2 | RV8  | A-2 |
| DL5  | C-3 | Q29 | D-2 | RV9  | A-2 |
| DL6  | B-2 | Q30 | D-3 | RV10 | A-2 |
| DL7  | B-2 | Q31 | D-2 | RV11 | A-2 |
| DL8  | B-2 | Q32 | D-3 | RV12 | C-3 |
|      |     | Q33 | C-2 | RV13 | D-1 |
| D1   | D-2 | Q34 | A-2 | RV14 | D-1 |
| D2   | D-2 | Q35 | A-2 | RV15 | D-2 |
|      |     | Q36 | A-3 |      |     |
| E1   | A-3 | Q37 | A-2 | TP1  | A-2 |
|      |     | Q38 | A-2 | TP2  | A-1 |
| FL1  | A-2 | Q39 | A-3 | TP3  | A-1 |
| FL2  | A-2 | Q40 | D-2 | TP4  | A-1 |
| FL3  | A-3 | Q41 | D-2 | TP5  | A-1 |
| FL4  | B-2 | Q42 | D-1 | TP6  | D-3 |
|      |     | Q43 | D-3 | TP7  | A-3 |
| IC1  | D-2 | Q44 | A-3 | TP8  | A-2 |
| IC2  | D-2 | Q45 | D-2 | TP9  | D-3 |
| IC3  | C-2 | Q46 | C-3 | TP10 | C-2 |
| IC4  | C-2 | Q47 | D-2 | TP11 | A-3 |
| IC5  | C-2 | Q48 | C-3 | TP12 | A-2 |
| IC6  | C-2 | Q49 | C-1 | TP13 | D-3 |
| IC7  | C-1 | Q50 | C-1 | TP14 | A-3 |
| IC8  | B-1 | Q51 | D-1 | TP15 | D-1 |
| IC9  | C-2 | Q52 | D-1 | TP16 | A-2 |
| IC10 | D-2 | Q53 | D-1 | TP17 | B-2 |
| IC11 | D-2 | Q54 | B-2 |      |     |
| IC12 | D-3 | Q55 | B-2 |      |     |
| IC13 | C-1 | Q56 | A-2 |      |     |
| IC14 | B-2 | Q57 | B-1 |      |     |
| IC15 | D-1 | Q58 | B-1 |      |     |
| IC16 | C-1 | Q59 | B-1 |      |     |
| IC17 | D-1 | Q60 | A-2 |      |     |
| IC18 | B-1 | Q61 | B-2 |      |     |
|      |     | Q62 | A-2 |      |     |
| LV1  | A-2 | Q63 | C-3 |      |     |
|      |     | Q64 | A-2 |      |     |
| Q1   | A-2 | Q65 | C-2 |      |     |
| Q2   | A-2 | Q66 | C-2 |      |     |
| Q3   | A-1 | Q67 | C-3 |      |     |
| Q4   | D-2 | Q68 | A-2 |      |     |
| Q5   | D-2 | Q69 | B-2 |      |     |
| Q6   | A-2 | Q70 | C-3 |      |     |
| Q7   | A-2 | Q71 | A-2 |      |     |
| Q8   | A-2 | Q72 | B-2 |      |     |
| Q9   | A-1 | Q73 | D-3 |      |     |
| Q10  | A-2 | Q74 | C-3 |      |     |
| Q11  | D-3 | Q75 | A-2 |      |     |
| Q12  | D-2 | Q76 | B-3 |      |     |
| Q13  | D-2 | Q77 | A-2 |      |     |
| Q14  | D-2 | Q78 | B-2 |      |     |
| Q15  | D-3 | Q79 | B-2 |      |     |
| Q16  | A-3 | Q80 | B-3 |      |     |
| Q17  | A-2 | Q81 | B-2 |      |     |
| Q18  | A-2 | Q82 | A-1 |      |     |
| Q19  | D-2 | Q83 | A-1 |      |     |
| Q20  | D-2 | Q84 | B-2 |      |     |
| Q21  | C-2 | Q85 | B-2 |      |     |



1-642-391-11 COMPONENT SIDE



1-642-391-11 SOLDERING SIDE

## PR-158/158P (1-642-391-11)

|      |     |     |     |      |     |
|------|-----|-----|-----|------|-----|
| CN1  | A-3 | Q22 | A-2 | RV1  | A-2 |
| CN2  | B-3 | Q23 | A-2 | RV2  | A-2 |
|      |     | Q24 | A-2 | RV3  | A-3 |
| DL1  | D-3 | Q25 | C-2 | RV5  | D-3 |
| DL2  | D-3 | Q26 | C-2 | RV6  | B-2 |
| DL3  | D-3 | Q27 | D-3 | RV7  | B-2 |
| DL4  | D-1 | Q28 | C-2 | RV8  | A-2 |
| DL5  | C-3 | Q29 | D-2 | RV9  | A-2 |
| DL6  | B-2 | Q30 | D-3 | RV10 | A-2 |
| DL7  | B-2 | Q31 | D-2 | RV11 | A-2 |
| DL8  | B-2 | Q32 | D-3 | RV12 | C-3 |
|      |     | Q33 | C-2 | RV13 | D-1 |
| D1   | D-2 | Q34 | A-2 | RV14 | D-1 |
| D2   | D-2 | Q35 | A-2 | RV15 | D-2 |
|      |     | Q36 | A-3 |      |     |
| E1   | A-3 | Q37 | A-2 | TP1  | A-2 |
|      |     | Q38 | A-2 | TP2  | A-1 |
| FL1  | A-2 | Q39 | A-3 | TP3  | A-1 |
| FL2  | A-2 | Q40 | D-2 | TP4  | A-1 |
| FL3  | A-3 | Q41 | D-2 | TP5  | A-1 |
| FL4  | B-2 | Q42 | D-1 | TP6  | D-3 |
|      |     | Q43 | D-3 | TP7  | A-3 |
| IC1  | D-2 | Q44 | A-3 | TP8  | A-2 |
| IC2  | D-2 | Q45 | D-2 | TP9  | D-3 |
| IC3  | C-2 | Q46 | C-3 | TP10 | C-2 |
| IC4  | C-2 | Q47 | D-2 | TP11 | A-3 |
| IC5  | C-2 | Q48 | C-3 | TP12 | A-2 |
| IC6  | C-2 | Q49 | C-1 | TP13 | D-3 |
| IC7  | C-1 | Q50 | C-1 | TP14 | A-3 |
| IC8  | B-1 | Q51 | D-1 | TP15 | D-1 |
| IC9  | C-2 | Q52 | D-1 | TP16 | A-2 |
| IC10 | D-2 | Q53 | D-1 | TP17 | B-2 |
| IC11 | D-2 | Q54 | B-2 |      |     |
| IC12 | D-3 | Q55 | B-2 |      |     |
| IC13 | C-1 | Q56 | A-2 |      |     |
| IC14 | B-2 | Q57 | B-1 |      |     |
| IC15 | D-1 | Q58 | B-1 |      |     |
| IC16 | C-1 | Q59 | B-1 |      |     |
| IC17 | D-1 | Q60 | A-2 |      |     |
| IC18 | B-1 | Q61 | B-2 |      |     |
|      |     | Q62 | A-2 |      |     |
| LV1  | A-2 | Q63 | C-3 |      |     |
|      |     | Q64 | A-2 |      |     |
| Q1   | A-2 | Q65 | C-2 |      |     |
| Q2   | A-2 | Q66 | C-2 |      |     |
| Q3   | A-1 | Q67 | C-3 |      |     |
| Q4   | D-2 | Q68 | A-2 |      |     |
| Q5   | D-2 | Q69 | B-2 |      |     |
| Q6   | A-2 | Q70 | C-3 |      |     |
| Q7   | A-2 | Q71 | A-2 |      |     |
| Q8   | A-2 | Q72 | B-2 |      |     |
| Q9   | A-1 | Q73 | D-3 |      |     |
| Q10  | A-2 | Q74 | C-3 |      |     |
| Q11  | D-3 | Q75 | A-2 |      |     |
| Q12  | D-2 | Q76 | B-3 |      |     |
| Q13  | D-2 | Q77 | A-2 |      |     |
| Q14  | D-2 | Q78 | B-2 |      |     |
| Q15  | D-3 | Q79 | B-2 |      |     |
| Q16  | A-3 | Q80 | B-3 |      |     |
| Q17  | A-2 | Q81 | B-2 |      |     |
| Q18  | A-2 | Q82 | A-1 |      |     |
| Q19  | D-2 | Q83 | A-1 |      |     |
| Q20  | D-2 | Q84 | B-2 |      |     |
| Q21  | C-2 | Q85 | B-2 |      |     |





PR-158/158P

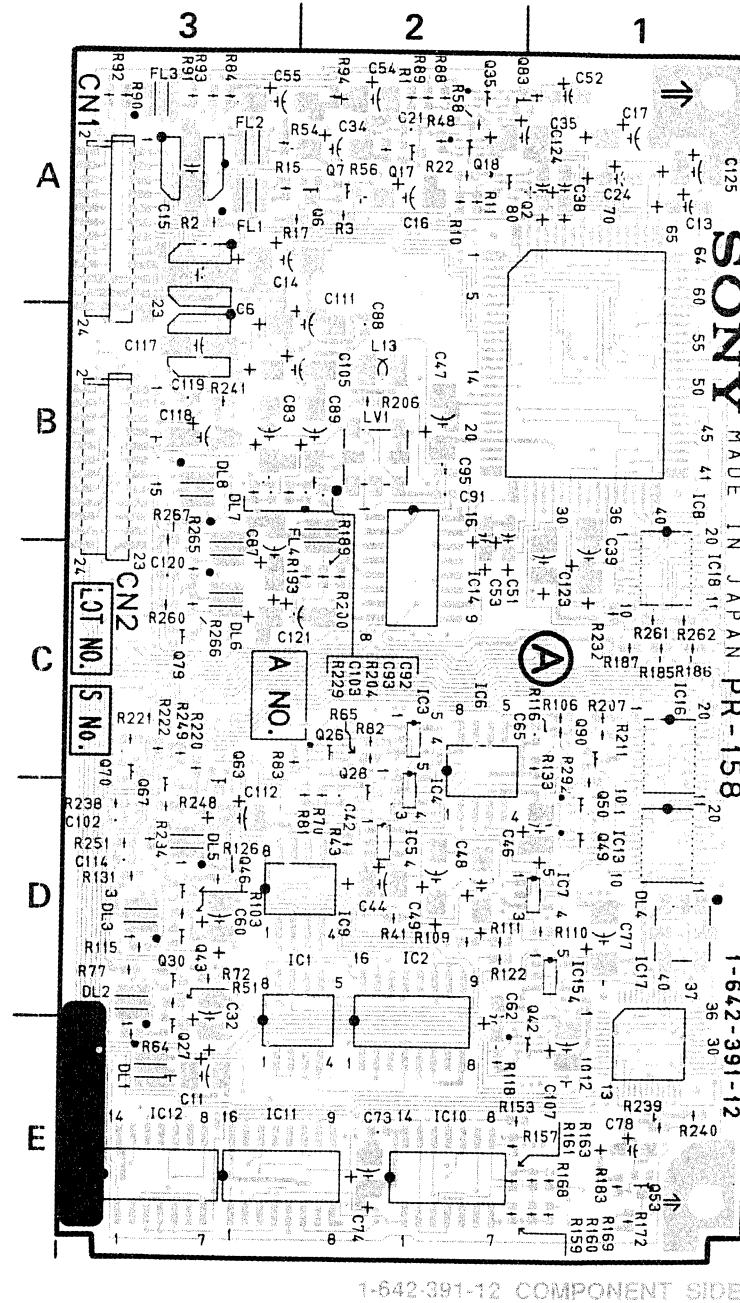
PR-158/158P

## PR-158/158P BOARD

Serial No. 30281-30480 DXC-930 (J)  
 10271-10570 DXC-930 (UC)  
 10481-10980 DXC-930P (EK)  
 10051-10250 DXC-960MD (UC)  
 10171-10320 XC-009 (J)  
 10061-10110 XC-009P (EK)

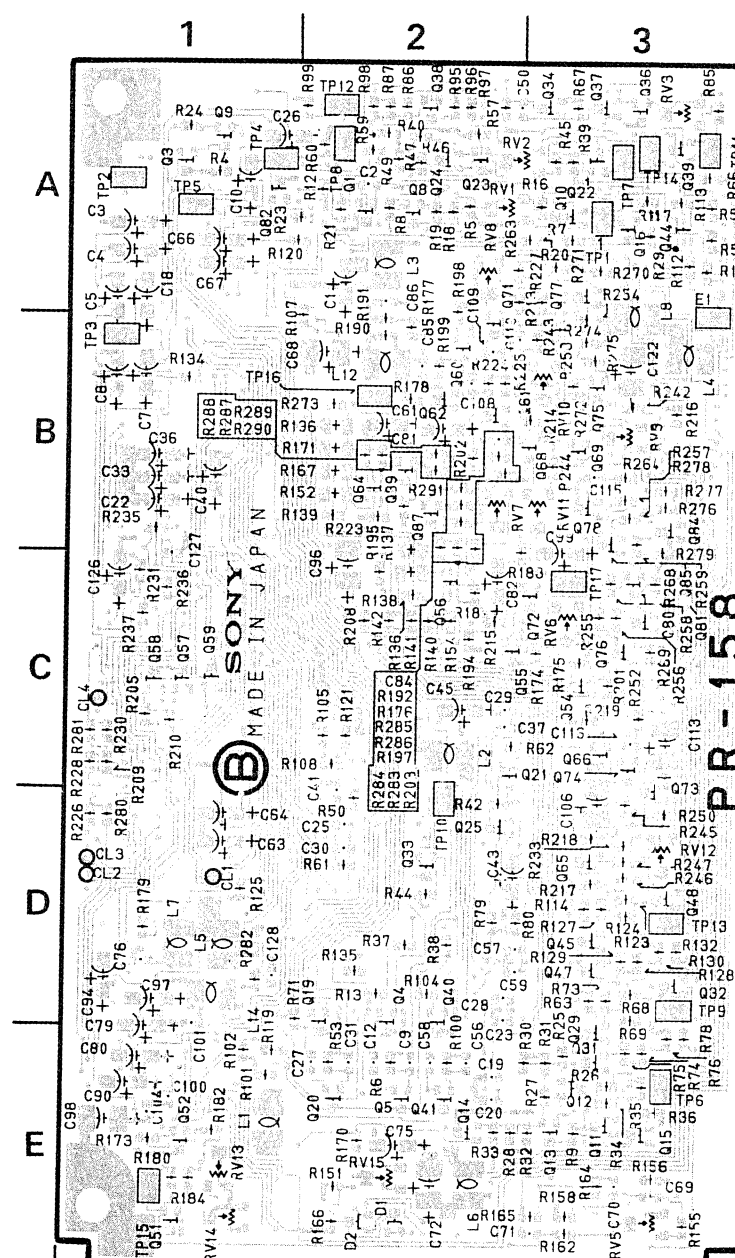
## PR-158/158P (1-642-391-12)

|      |     |     |     |      |     |
|------|-----|-----|-----|------|-----|
| CN1  | A-3 | Q22 | A-2 | Q87  | B-2 |
| CN2  | B-3 | Q23 | A-2 | Q89  | B-2 |
|      |     | Q24 | A-2 | Q90  | C-1 |
| DL1  | E-3 | Q25 | C-2 |      |     |
| DL2  | D-3 | Q26 | C-2 | RV1  | A-2 |
| DL3  | D-3 | Q27 | D-3 | RV2  | A-2 |
| DL4  | D-1 | Q28 | C-2 | RV3  | A-3 |
| DL5  | D-3 | Q29 | D-2 | RV5  | D-3 |
| DL6  | C-3 | Q30 | D-3 | RV6  | B-2 |
| DL7  | C-3 | Q31 | D-2 | RV7  | B-2 |
| DL8  | B-3 | Q32 | D-3 | RV8  | A-2 |
|      |     | Q33 | C-2 | RV9  | A-2 |
| D1   | D-2 | Q34 | A-2 | RV10 | B-3 |
| D2   | D-2 | Q35 | A-2 | RV11 | A-2 |
|      |     | Q36 | A-3 | RV12 | C-3 |
| E1   | A-3 | Q37 | A-2 | RV13 | D-1 |
|      |     | Q38 | A-2 | RV14 | D-1 |
| FL1  | A-3 | Q39 | A-3 | RV15 | D-2 |
| FL2  | A-3 | Q40 | D-2 |      |     |
| FL3  | A-3 | Q41 | D-2 | TP1  | A-2 |
| FL4  | B-2 | Q42 | D-1 | TP2  | A-1 |
|      |     | Q43 | D-3 | TP3  | A-1 |
| IC1  | D-2 | Q44 | A-3 | TP4  | A-1 |
| IC2  | D-2 | Q45 | D-2 | TP5  | A-1 |
| IC3  | C-2 | Q46 | C-3 | TP6  | D-3 |
| IC4  | C-2 | Q47 | D-2 | TP7  | A-3 |
| IC5  | D-2 | Q48 | C-3 | TP8  | A-2 |
| IC6  | C-2 | Q49 | C-1 | TP9  | D-3 |
| IC7  | D-1 | Q50 | C-1 | TP10 | C-2 |
| IC8  | B-1 | Q51 | D-1 | TP11 | A-3 |
| IC9  | C-2 | Q52 | D-1 | TP12 | A-2 |
| IC10 | E-2 | Q53 | D-1 | TP13 | D-3 |
| IC11 | E-3 | Q54 | B-2 | TP14 | A-3 |
| IC12 | E-3 | Q55 | B-2 | TP15 | D-1 |
| IC13 | D-1 | Q56 | C-2 | TP16 | A-2 |
| IC14 | C-2 | Q57 | B-1 | TP17 | B-2 |
| IC15 | D-1 | Q58 | B-1 |      |     |
| IC16 | C-1 | Q59 | B-1 |      |     |
| IC17 | D-1 | Q60 | A-2 |      |     |
| IC18 | C-1 | Q61 | B-2 |      |     |
|      |     | Q62 | A-2 |      |     |
| LV1  | B-2 | Q63 | C-3 |      |     |
|      |     | Q64 | B-2 |      |     |
| Q1   | A-2 | Q65 | C-2 |      |     |
| Q2   | A-2 | Q66 | C-2 |      |     |
| Q3   | A-1 | Q67 | C-3 |      |     |
| Q4   | D-2 | Q68 | A-2 |      |     |
| Q5   | D-2 | Q69 | B-2 |      |     |
| Q6   | A-2 | Q70 | C-3 |      |     |
| Q7   | A-2 | Q71 | A-2 |      |     |
| Q8   | A-2 | Q72 | B-2 |      |     |
| Q9   | A-1 | Q73 | D-3 |      |     |
| Q10  | A-2 | Q74 | C-3 |      |     |
| Q11  | D-3 | Q75 | A-2 |      |     |
| Q12  | D-2 | Q76 | B-3 |      |     |
| Q13  | D-2 | Q77 | A-2 |      |     |
| Q14  | D-2 | Q78 | B-2 |      |     |
| Q15  | D-3 | Q79 | B-2 |      |     |
| Q16  | A-3 | Q80 | B-3 |      |     |
| Q17  | A-2 | Q81 | B-2 |      |     |
| Q18  | A-2 | Q82 | A-1 |      |     |
| Q19  | D-2 | Q83 | A-1 |      |     |
| Q20  | D-2 | Q84 | B-2 |      |     |
| Q21  | C-2 | Q85 | B-2 |      |     |



1-642-391-12 COMPONENT SIDE

C-7 (b)



1-642-391-12 SOLDERING SIDE

C-8 (b)

## PR-158/158P (1-642-391-12)

|      |     |     |     |      |     |
|------|-----|-----|-----|------|-----|
| CN1  | A-3 | Q22 | A-2 | Q87  | B-2 |
| CN2  | B-3 | Q23 | A-2 | Q89  | B-2 |
|      |     | Q24 | A-2 | Q90  | C-1 |
| DL1  | E-3 | Q25 | C-2 | RV1  | A-2 |
| DL2  | D-3 | Q26 | C-2 | RV2  | A-2 |
| DL3  | D-3 | Q27 | D-3 | RV3  | A-3 |
| DL4  | D-1 | Q28 | C-2 | RV5  | D-3 |
| DL5  | D-3 | Q29 | D-2 | RV6  | B-2 |
| DL6  | C-3 | Q30 | D-3 | RV7  | B-2 |
| DL7  | C-3 | Q31 | D-2 | RV8  | A-2 |
| DL8  | B-3 | Q32 | D-3 | RV9  | A-2 |
|      |     | Q33 | C-2 | RV10 | B-3 |
| D1   | D-2 | Q34 | A-2 | RV11 | A-2 |
| D2   | D-2 | Q35 | A-2 | RV12 | C-3 |
|      |     | Q36 | A-3 | RV13 | D-1 |
| E1   | A-3 | Q37 | A-2 | RV14 | D-1 |
|      |     | Q38 | A-2 | RV15 | D-2 |
| FL1  | A-3 | Q39 | A-3 | TP1  | A-2 |
| FL2  | A-3 | Q40 | D-2 | TP2  | A-1 |
| FL3  | A-3 | Q41 | D-2 | TP3  | A-1 |
| FL4  | B-2 | Q42 | D-1 | TP4  | A-1 |
|      |     | Q43 | D-3 | TP5  | A-1 |
| IC1  | D-2 | Q44 | A-3 | TP6  | D-3 |
| IC2  | D-2 | Q45 | D-2 | TP7  | A-3 |
| IC3  | C-2 | Q46 | C-3 | TP8  | A-2 |
| IC4  | C-2 | Q47 | D-2 | TP9  | D-3 |
| IC5  | D-2 | Q48 | C-3 | TP10 | C-2 |
| IC6  | C-2 | Q49 | C-1 | TP11 | A-3 |
| IC7  | D-1 | Q50 | C-1 | TP12 | A-2 |
| IC8  | B-1 | Q51 | D-1 | TP13 | D-3 |
| IC9  | C-2 | Q52 | D-1 | TP14 | A-3 |
| IC10 | E-2 | Q53 | D-1 | TP15 | D-1 |
| IC11 | E-3 | Q54 | B-2 | TP16 | A-2 |
| IC12 | E-3 | Q55 | B-2 | TP17 | B-2 |
| IC13 | D-1 | Q56 | C-2 |      |     |
| IC14 | C-2 | Q57 | B-1 |      |     |
| IC15 | D-1 | Q58 | B-1 |      |     |
| IC16 | C-1 | Q59 | B-1 |      |     |
| IC17 | D-1 | Q60 | A-2 |      |     |
| IC18 | C-1 | Q61 | B-2 |      |     |
|      |     | Q62 | A-2 |      |     |
| LV1  | B-2 | Q63 | C-3 |      |     |
|      |     | Q64 | B-2 |      |     |
| Q1   | A-2 | Q65 | C-2 |      |     |
| Q2   | A-2 | Q66 | C-2 |      |     |
| Q3   | A-1 | Q67 | C-3 |      |     |
| Q4   | D-2 | Q68 | A-2 |      |     |
| Q5   | D-2 | Q69 | B-2 |      |     |
| Q6   | A-2 | Q70 | C-3 |      |     |
| Q7   | A-2 | Q71 | A-2 |      |     |
| Q8   | A-2 | Q72 | B-2 |      |     |
| Q9   | A-1 | Q73 | D-3 |      |     |
| Q10  | A-2 | Q74 | C-3 |      |     |
| Q11  | D-3 | Q75 | A-2 |      |     |
| Q12  | D-2 | Q76 | B-3 |      |     |
| Q13  | D-2 | Q77 | A-2 |      |     |
| Q14  | D-2 | Q78 | B-2 |      |     |
| Q15  | D-3 | Q79 | B-2 |      |     |
| Q16  | A-3 | Q80 | B-3 |      |     |
| Q17  | A-2 | Q81 | B-2 |      |     |
| Q18  | A-2 | Q82 | A-1 |      |     |
| Q19  | D-2 | Q83 | A-1 |      |     |
| Q20  | D-2 | Q84 | B-2 |      |     |
| Q21  | C-2 | Q85 | B-2 |      |     |

DXC-930/930P  
 DXC-960MD  
 XC-009/009P

H



# PR-158/158P BOARD

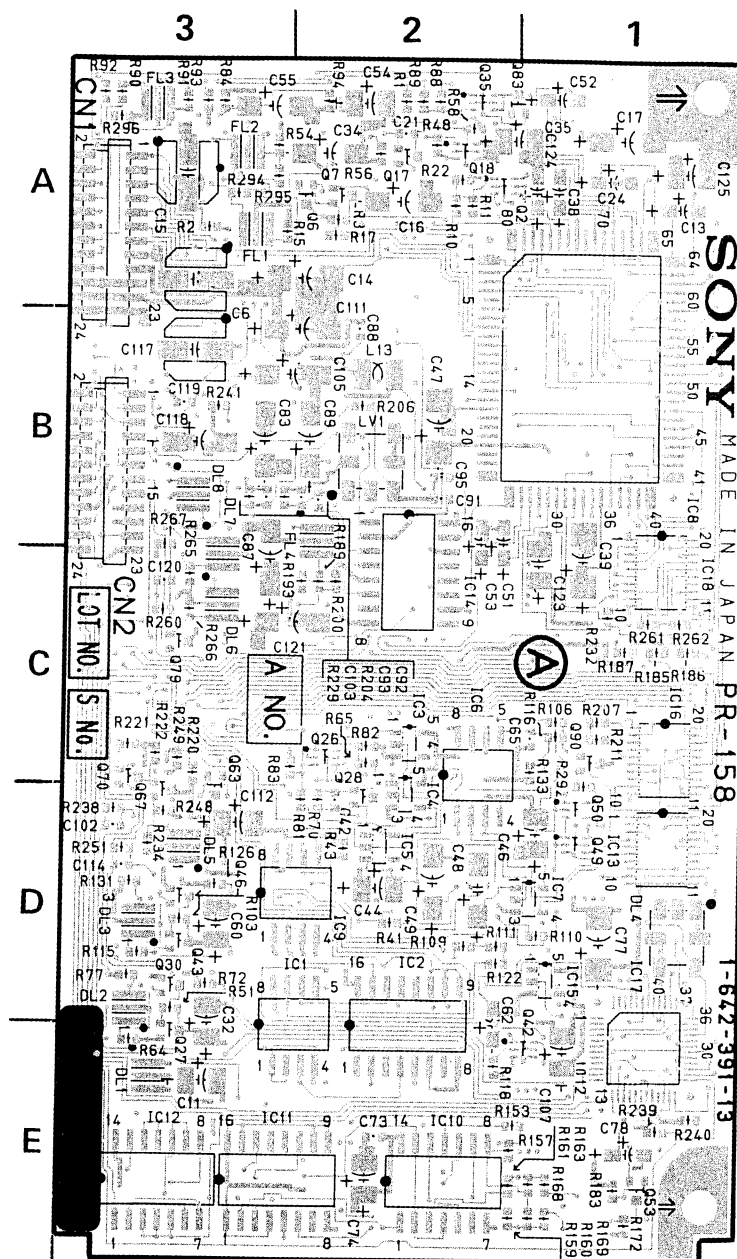
|                   |                |
|-------------------|----------------|
| Serial No. 30481- | DXC-930 (J)    |
| 10571-            | DXC-930 (UC)   |
| 10981-            | DXC-930P (EK)  |
| 50001-            | DXC-930P (UC)  |
| 10251-            | DXC-960MD (UC) |
| 10321-            | XC-009 (J)     |
| 10111-            | XC-009P (EK)   |

PR-158/158P

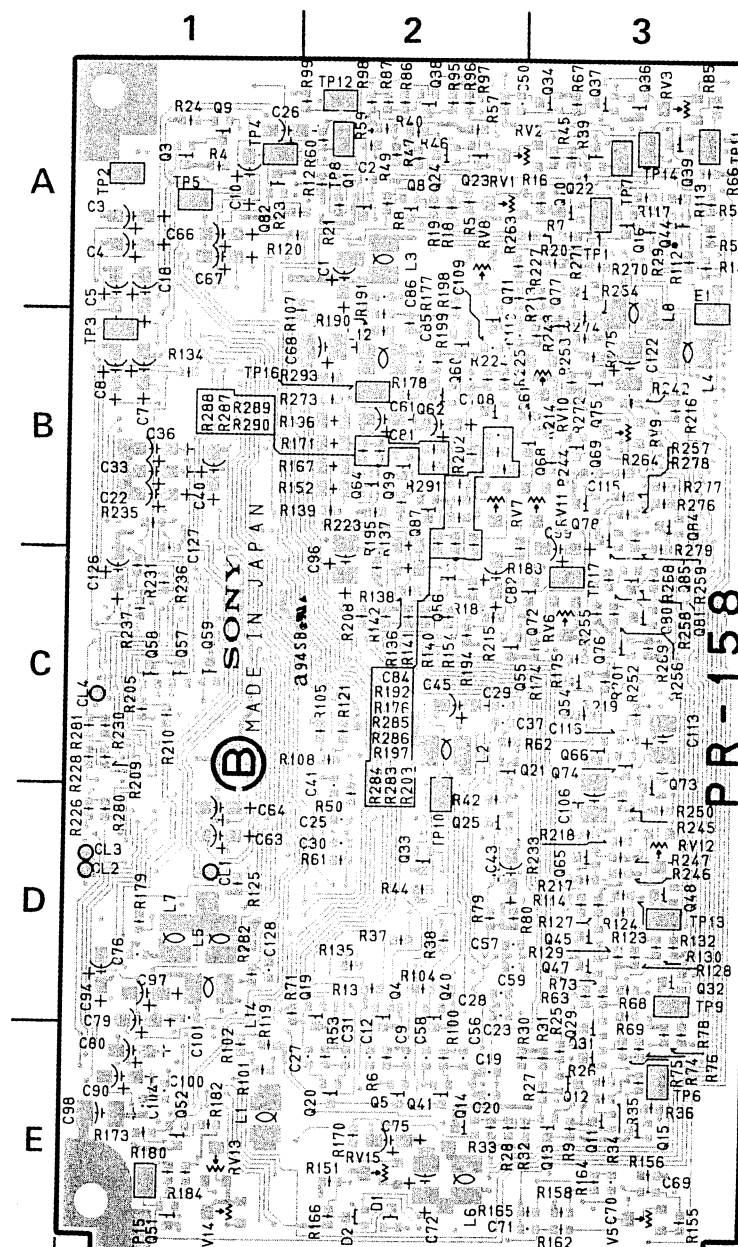
PR-158/158P

## PR-158/158P (1-642-391-13)

|      |     |     |     |      |     |
|------|-----|-----|-----|------|-----|
| CN1  | A-3 | Q22 | A-2 | Q87  | B-2 |
| CN2  | B-3 | Q23 | A-2 | Q89  | B-2 |
|      |     | Q24 | A-2 | Q90  | C-1 |
| DL1  | E-3 | Q25 | C-2 |      |     |
| DL2  | D-3 | Q26 | C-2 | RV1  | A-2 |
| DL3  | D-3 | Q27 | D-3 | RV2  | A-2 |
| DL4  | D-1 | Q28 | C-2 | RV3  | A-3 |
| DL5  | D-3 | Q29 | D-2 | RV5  | D-3 |
| DL6  | C-3 | Q30 | D-3 | RV6  | B-2 |
| DL7  | C-3 | Q31 | D-2 | RV7  | B-2 |
| DL8  | B-3 | Q32 | D-3 | RV8  | A-2 |
|      |     | Q33 | C-2 | RV9  | A-2 |
| D1   | D-2 | Q34 | A-2 | RV10 | B-3 |
| D2   | D-2 | Q35 | A-2 | RV11 | A-2 |
|      |     | Q36 | A-3 | RV12 | C-3 |
| E1   | A-3 | Q37 | A-2 | RV13 | D-1 |
|      |     | Q38 | A-2 | RV14 | D-1 |
|      |     | Q39 | A-3 | RV15 | D-2 |
| FL1  | A-3 | Q40 | D-2 |      |     |
| FL2  | A-3 | Q41 | D-2 | TP1  | A-2 |
| FL3  | A-3 | Q42 | D-1 | TP2  | A-1 |
| FL4  | B-2 | Q43 | D-3 | TP3  | A-1 |
|      |     | Q44 | A-3 | TP4  | A-1 |
| IC1  | D-2 | Q45 | D-2 | TP5  | A-1 |
| IC2  | D-2 | Q46 | C-3 | TP6  | D-3 |
| IC3  | C-2 | Q47 | D-2 | TP7  | A-3 |
| IC4  | C-2 | Q48 | C-3 | TP8  | A-2 |
| IC5  | D-2 | Q49 | C-1 | TP9  | D-3 |
| IC6  | C-2 | Q50 | C-1 | TP10 | C-2 |
| IC7  | D-1 | Q51 | D-1 | TP11 | A-3 |
| IC8  | B-1 | Q52 | D-1 | TP12 | A-2 |
| IC9  | C-2 | Q53 | D-1 | TP13 | D-3 |
| IC10 | E-2 | Q54 | B-2 | TP14 | A-3 |
| IC11 | E-3 | Q55 | B-2 | TP15 | D-1 |
| IC12 | E-3 | Q56 | C-2 | TP16 | A-2 |
| IC13 | D-1 | Q57 | B-1 | TP17 | B-2 |
| IC14 | C-2 | Q58 | B-1 |      |     |
| IC15 | D-1 | Q59 | B-1 |      |     |
| IC16 | C-1 | Q60 | A-2 |      |     |
| IC17 | D-1 | Q61 | B-2 |      |     |
| IC18 | C-1 | Q62 | A-2 |      |     |
|      |     | Q63 | C-3 |      |     |
| LV1  | B-2 | Q64 | B-2 |      |     |
|      |     | Q65 | C-2 |      |     |
| Q1   | A-2 | Q66 | C-2 |      |     |
| Q2   | A-2 | Q67 | C-3 |      |     |
| Q3   | A-1 | Q68 | A-2 |      |     |
| Q4   | D-2 | Q69 | B-2 |      |     |
| Q5   | D-2 | Q70 | C-3 |      |     |
| Q6   | A-2 | Q71 | A-2 |      |     |
| Q7   | A-2 | Q72 | B-2 |      |     |
| Q8   | A-2 | Q73 | D-3 |      |     |
| Q9   | A-1 | Q74 | C-3 |      |     |
| Q10  | A-2 | Q75 | A-2 |      |     |
| Q11  | D-3 | Q76 | B-3 |      |     |
| Q12  | D-2 | Q77 | A-2 |      |     |
| Q13  | D-2 | Q78 | B-2 |      |     |
| Q14  | D-2 | Q79 | B-2 |      |     |
| Q15  | D-3 | Q80 | B-3 |      |     |
| Q16  | A-3 | Q81 | B-2 |      |     |
| Q17  | A-2 | Q82 | A-1 |      |     |
| Q18  | A-2 | Q83 | A-1 |      |     |
| Q19  | D-2 | Q84 | B-2 |      |     |
| Q20  | D-2 | Q85 | B-2 |      |     |
| Q21  | C-2 |     |     |      |     |



1-642-391-13 COMPONENT SIDE



1-642-391-13 SOLDERING SIDE

## PR-158/158P (1-642-391-13)

|      |     |     |     |      |     |
|------|-----|-----|-----|------|-----|
| CN1  | A-3 | Q22 | A-2 | Q87  | B-2 |
| CN2  | B-3 | Q23 | A-2 | Q89  | B-2 |
|      |     | Q24 | A-2 | Q90  | C-1 |
| DL1  | E-3 | Q25 | C-2 |      |     |
| DL2  | D-3 | Q26 | C-2 | RV1  | A-2 |
| DL3  | D-3 | Q27 | D-3 | RV2  | A-2 |
| DL4  | D-1 | Q28 | C-2 | RV3  | A-3 |
| DL5  | D-3 | Q29 | D-2 | RV5  | D-3 |
| DL6  | C-3 | Q30 | D-3 | RV6  | B-2 |
| DL7  | C-3 | Q31 | D-2 | RV7  | B-2 |
| DL8  | B-3 | Q32 | D-3 | RV8  | A-2 |
|      |     | Q33 | C-2 | RV9  | A-2 |
| D1   | D-2 | Q34 | A-2 | RV10 | B-3 |
| D2   | D-2 | Q35 | A-2 | RV11 | A-2 |
|      |     | Q36 | A-3 | RV12 | C-3 |
| E1   | A-3 | Q37 | A-2 | RV13 | D-1 |
|      |     | Q38 | A-2 | RV14 | D-1 |
|      |     | Q39 | A-3 | RV15 | D-2 |
| FL1  | A-3 | Q40 | D-2 |      |     |
| FL2  | A-3 | Q41 | D-2 | TP1  | A-2 |
| FL3  | A-3 | Q42 | D-1 | TP2  | A-1 |
| FL4  | B-2 | Q43 | D-3 | TP3  | A-1 |
|      |     | Q44 | A-3 | TP4  | A-1 |
| IC1  | D-2 | Q45 | D-2 | TP5  | A-1 |
| IC2  | D-2 | Q46 | C-3 | TP6  | D-3 |
| IC3  | C-2 | Q47 | D-2 | TP7  | A-3 |
| IC4  | C-2 | Q48 | C-3 | TP8  | A-2 |
| IC5  | D-2 | Q49 | C-1 | TP9  | D-3 |
| IC6  | C-2 | Q50 | C-1 | TP10 | C-2 |
| IC7  | D-1 | Q51 | D-1 | TP11 | A-3 |
| IC8  | B-1 | Q52 | D-1 | TP12 | A-2 |
| IC9  | C-2 | Q53 | D-1 | TP13 | D-3 |
| IC10 | E-2 | Q54 | B-2 | TP14 | A-3 |
| IC11 | E-3 | Q55 | B-2 | TP15 | D-1 |
| IC12 | E-3 | Q56 | C-2 | TP16 | A-2 |
| IC13 | D-1 | Q57 | B-1 | TP17 | B-2 |
| IC14 | C-2 | Q58 | B-1 |      |     |
| IC15 | D-1 | Q59 | B-1 |      |     |
| IC16 | C-1 | Q60 | A-2 |      |     |
| IC17 | D-1 | Q61 | B-2 |      |     |
| IC18 | C-1 | Q62 | A-2 |      |     |
|      |     | Q63 | C-3 |      |     |
| LV1  | B-2 | Q64 | B-2 |      |     |
|      |     | Q65 | C-2 |      |     |
| Q1   | A-2 | Q66 | C-2 |      |     |
| Q2   | A-2 | Q67 | C-3 |      |     |
| Q3   | A-1 | Q68 | A-2 |      |     |
| Q4   | D-2 | Q69 | B-2 |      |     |
| Q5   | D-2 | Q70 | C-3 |      |     |
| Q6   | A-2 | Q71 | A-2 |      |     |
| Q7   | A-2 | Q72 | B-2 |      |     |
| Q8   | A-2 | Q73 | D-3 |      |     |
| Q9   | A-1 | Q74 | C-3 |      |     |
| Q10  | A-2 | Q75 | A-2 |      |     |
| Q11  | D-3 | Q76 | B-3 |      |     |
| Q12  | D-2 | Q77 | A-2 |      |     |
| Q13  | D-2 | Q78 | B-2 |      |     |
| Q14  | D-2 | Q79 | B-2 |      |     |
| Q15  | D-3 | Q80 | B-3 |      |     |
| Q16  | A-3 | Q81 | B-2 |      |     |
| Q17  | A-2 | Q82 | A-1 |      |     |
| Q18  | A-2 | Q83 | A-1 |      |     |
| Q19  | D-2 | Q84 | B-2 |      |     |
| Q20  | D-2 | Q85 | B-2 |      |     |
| Q21  | C-2 |     |     |      |     |

C-7 (c)

C-8 (c)

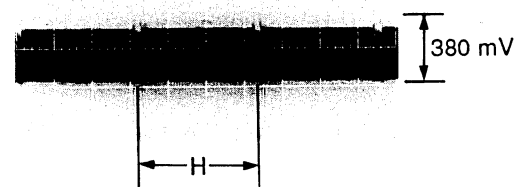
DXC-930/930P  
DXC-960MD  
XC-009/009P

## PR-158/158P BOARD

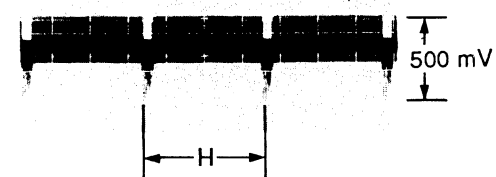
## NOTE:

- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom → "BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

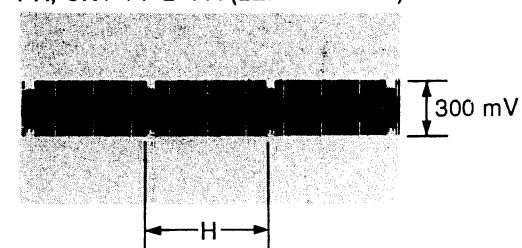
PR, CN1-18 R PA (LENS: CLOSE)



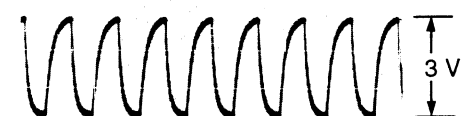
PR, CN1-16 G PA (LENS: CLOSE)



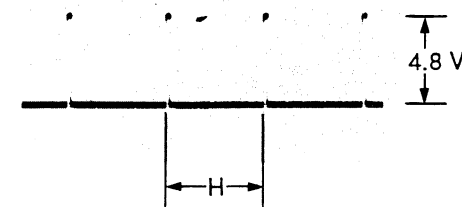
PR, CN1-14 B PA (LENS: CLOSE)



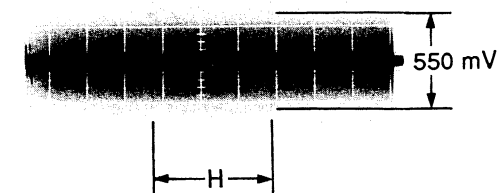
PR, CN2-20 SC



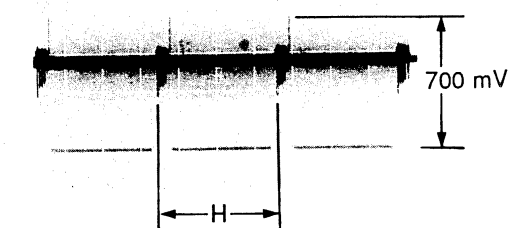
PR, CN2-16 BF



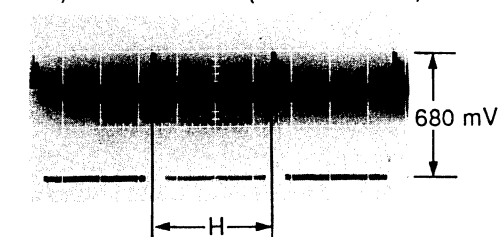
PR, CN2-14 L ALT



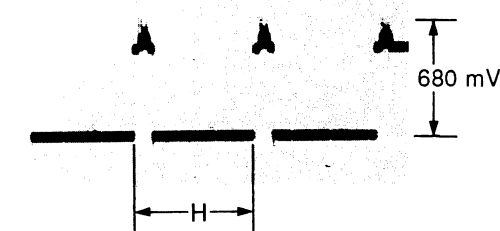
PR, TP4 R VIDEO (LENS: CLOSE)



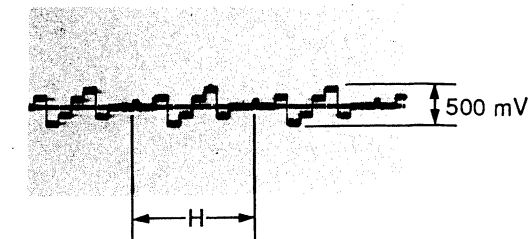
PR, TP8 G VIDEO (LENS: CLOSE)



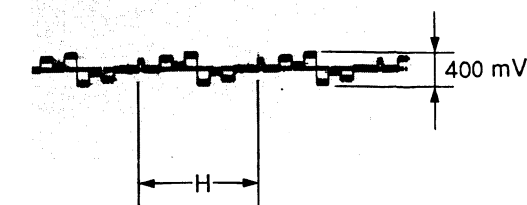
PR, TP12 B VIDEO (LENS: CLOSE)



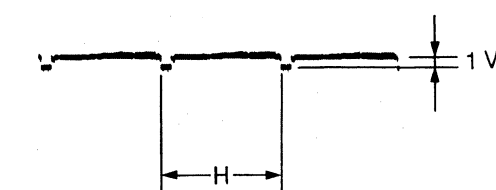
PR, TP16 R-Y



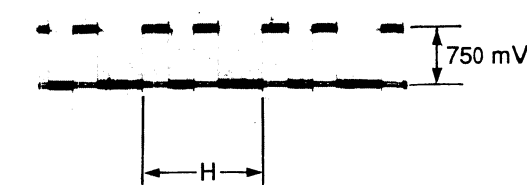
PR, TP17 B-Y



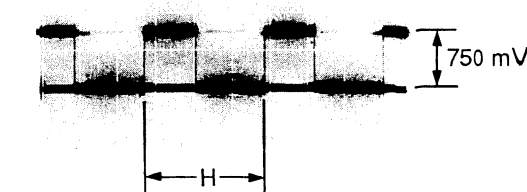
PR, CN1-9



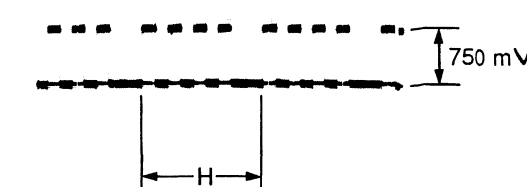
PR, TP6 R PR



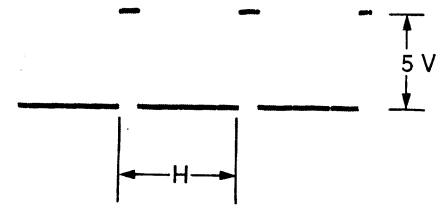
PR, TP9 G PR



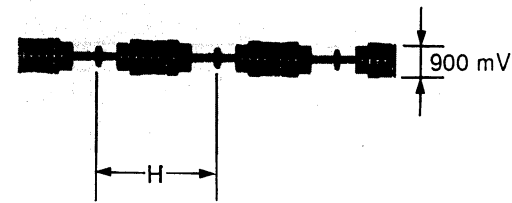
PR, TP13 B PR



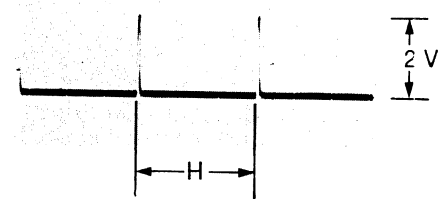
PR, CN1-2 CLP4



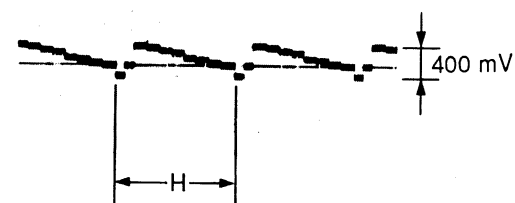
PR, CN2-13 CHROMA



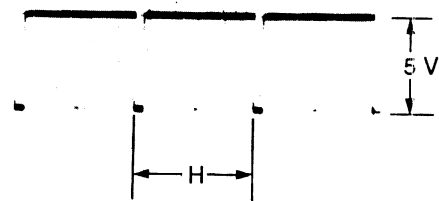
PR, CN1-13 CLP3



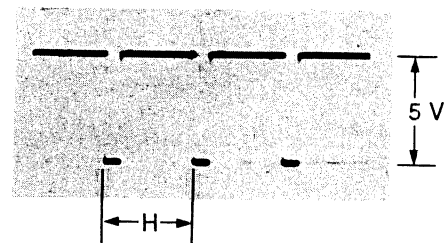
PR, CN2-15 Y



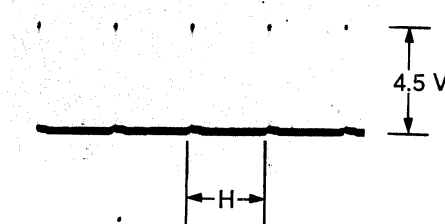
PR, CN2-24 SYNC



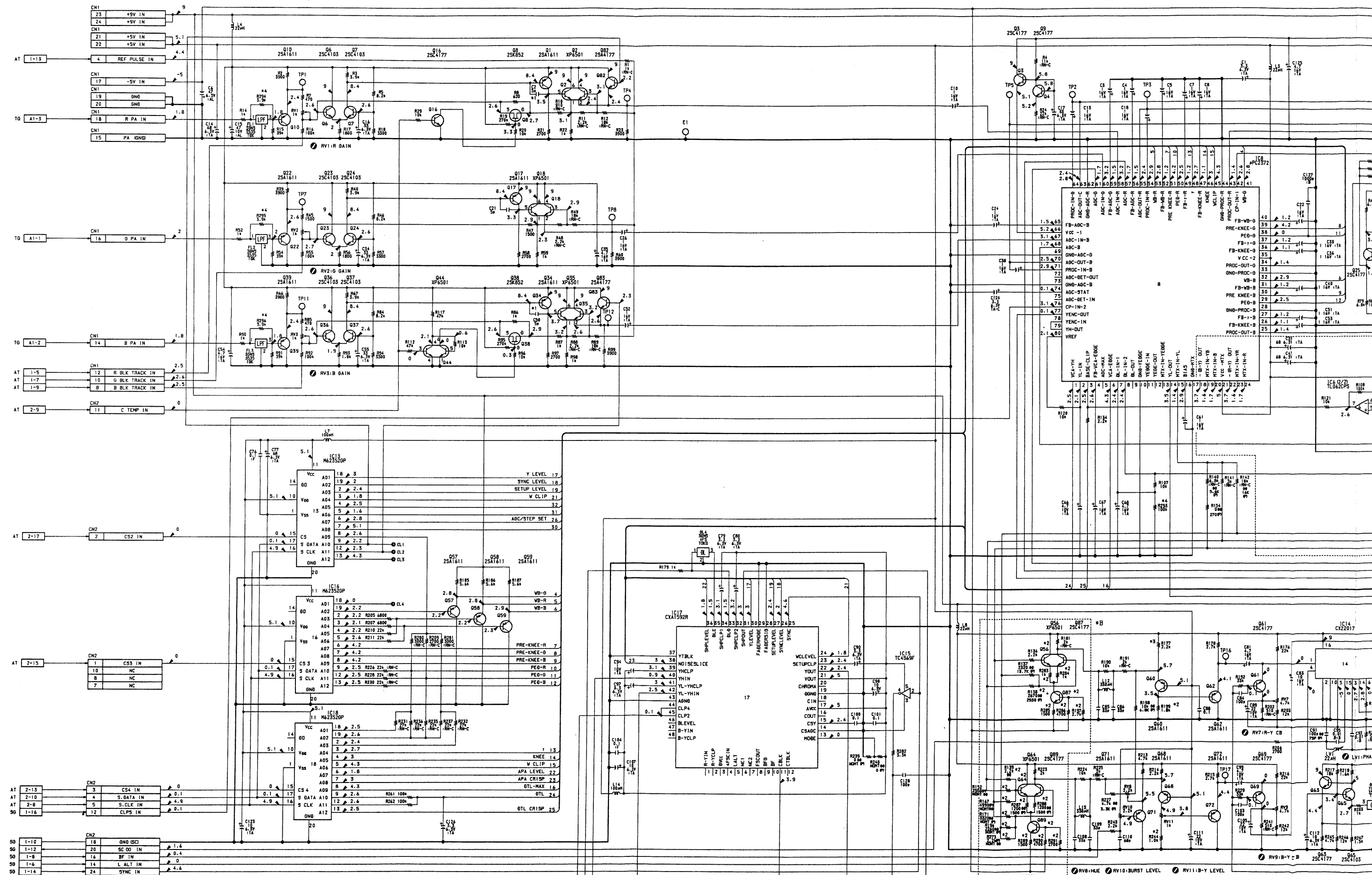
PR, CN2-22 BLKG



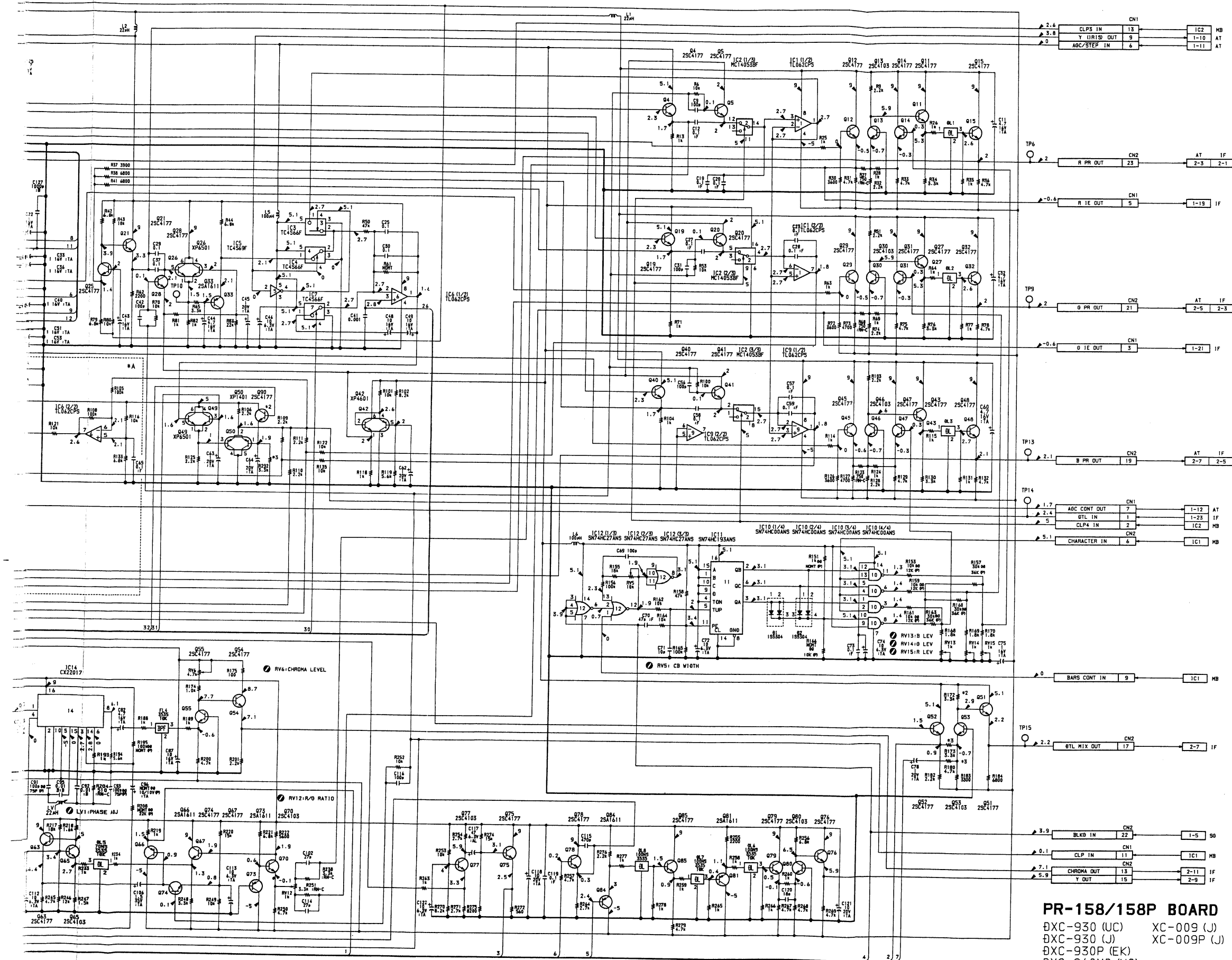
PR, CN1-11 CLP



## PR-158/158P BOARD







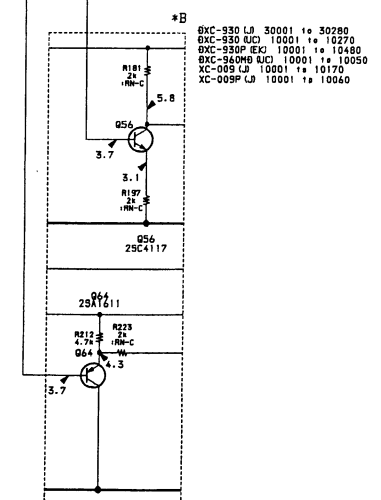
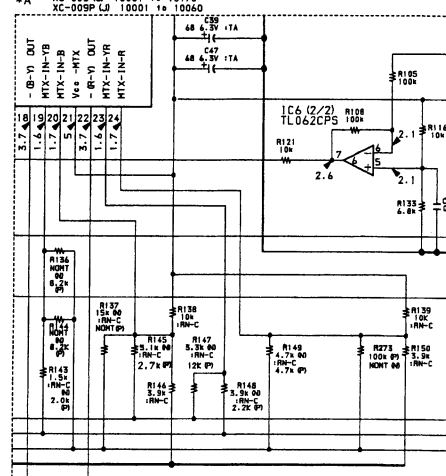
PR-158/158P BOARD

ØXC-930 (UC)      XC-009 (J)  
 ØXC-930 (J)      XC-009P (J)  
 ØXC-930P (EK)  
 ØXC-960MØ (UC)

| #  | MARK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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| #1 | C20: 3P → 5P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                          | DXC-930 LU 30181 and higher<br>DXC-930 RU 10071 and higher<br>DXC-930E KC 10211 and higher<br>XC-089P LU 10011 and higher<br>XC-089P LU 10021 and higher<br>XC-089P LU 10031 and higher |
| #2 | AG0:<br>0857, 0858, 090A R196<br>1334 R234 R235<br>R236 R237 R238<br>R239 R240 R241<br>R242 R243 R244<br>R245 R246 R247<br>R248 R249 R250<br>R251 R252 R253<br>R254 R255 R256<br>R257 R258 R259<br>R260 R261 R262<br>R263 R264 R265<br>R266 R267 R268<br>R269 R270 R271<br>R272 R273 R274<br>R275 R276 R277<br>R278 R279 R280<br>R281 R282 R283<br>R284 R285 R286<br>R287 R288 R289<br>R290 R291 R292<br>R293 R294 R295<br>R296 R297 R298<br>R299 R300 R301<br>R302 R303 R304<br>R305 R306 R307<br>R308 R309 R310<br>R311 R312 R313<br>R314 R315 R316<br>R317 R318 R319<br>R320 R321 R322<br>R323 R324 R325<br>R326 R327 R328<br>R329 R330 R331<br>R332 R333 R334<br>R335 R336 R337<br>R338 R339 R340<br>R341 R342 R343<br>R344 R345 R346<br>R347 R348 R349<br>R350 R351 R352<br>R353 R354 R355<br>R356 R357 R358<br>R359 R360 R361<br>R362 R363 R364<br>R365 R366 R367<br>R368 R369 R370<br>R371 R372 R373<br>R374 R375 R376<br>R377 R378 R379<br>R380 R381 R382<br>R383 R384 R385<br>R386 R387 R388<br>R389 R390 R391<br>R392 R393 R394<br>R395 R396 R397<br>R398 R399 R400<br>R401 R402 R403<br>R404 R405 R406<br>R407 R408 R409<br>R410 R411 R412<br>R413 R414 R415<br>R416 R417 R418<br>R419 R420 R421<br>R422 R423 R424<br>R425 R426 R427<br>R428 R429 R430<br>R431 R432 R433<br>R434 R435 R436<br>R437 R438 R439<br>R440 R441 R442<br>R443 R444 R445<br>R446 R447 R448<br>R449 R450 R451<br>R452 R453 R454<br>R455 R456 R457<br>R458 R459 R460<br>R461 R462 R463<br>R464 R465 R466<br>R467 R468 R469<br>R470 R471 R472<br>R473 R474 R475<br>R476 R477 R478<br>R479 R480 R481<br>R482 R483 R484<br>R485 R486 R487<br>R488 R489 R490<br>R491 R492 R493<br>R494 R495 R496<br>R497 R498 R499<br>R500 R501 R502<br>R503 R504 R505<br>R506 R507 R508<br>R509 R510 R511<br>R512 R513 R514<br>R515 R516 R517<br>R518 R519 R520<br>R521 R522 R523<br>R524 R525 R526<br>R527 R528 R529<br>R530 R531 R532<br>R533 R534 R535<br>R536 R537 R538<br>R539 R540 R541<br>R542 R543 R544<br>R545 R546 R547<br>R548 R549 R550<br>R551 R552 R553<br>R554 R555 R556<br>R557 R558 R559<br>R560 R561 R562<br>R563 R564 R565<br>R566 R567 R568<br>R569 R570 R571<br>R572 R573 R574<br>R575 R576 R577<br>R578 R579 R580<br>R581 R582 R583<br>R584 R585 R586<br>R587 R588 R589<br>R590 R591 R592<br>R593 R594 R595<br>R596 R597 R598<br>R599 R600 R601<br>R602 R603 R604<br>R605 R606 R607<br>R608 R609 R610<br>R611 R612 R613<br>R614 R615 R616<br>R617 R618 R619<br>R620 R621 R622<br>R623 R624 R625<br>R626 R627 R628<br>R629 R630 R631<br>R632 R633 R634<br>R635 R636 R637<br>R638 R639 R640<br>R641 R642 R643<br>R644 R645 R646<br>R647 R648 R649<br>R650 R651 R652<br>R653 R654 R655<br>R656 R657 R658<br>R659 R660 R661<br>R662 R663 R664<br>R665 R666 R667<br>R668 R669 R670<br>R671 R672 R673<br>R674 R675 R676<br>R677 R678 R679<br>R680 R681 R682<br>R683 R684 R685<br>R686 R687 R688<br>R689 R690 R691<br>R692 R693 R694<br>R695 R696 R697<br>R698 R699 R700<br>R701 R702 R703<br>R704 R705 R706<br>R707 R708 R709<br>R710 R711 R712<br>R713 R714 R715<br>R716 R717 R718<br>R719 R720 R721<br>R722 R723 R724<br>R725 R726 R727<br>R728 R729 R730<br>R731 R732 R733<br>R734 R735 R736<br>R737 R738 R739<br>R740 R741 R742<br>R743 R744 R745<br>R746 R747 R748<br>R749 R750 R751<br>R752 R753 R754<br>R755 R756 R757<br>R758 R759 R760<br>R761 R762 R763<br>R764 R765 R766<br>R767 R768 R769<br>R770 R771 R772<br>R773 R774 R775<br>R776 R777 R778<br>R779 R780 R781<br>R782 R783 R784<br>R785 R786 R787<br>R788 R789 R790<br>R791 R792 R793<br>R794 R795 R796<br>R797 R798 R799<br>R800 R801 R802<br>R803 R804 R805<br>R806 R807 R808<br>R809 R810 R811<br>R812 R813 R814<br>R815 R816 R817<br>R818 R819 R820<br>R821 R822 R823<br>R824 R825 R826<br>R827 R828 R829<br>R830 R831 R832<br>R833 R834 R835<br>R836 R837 R838<br>R839 R840 R841<br>R842 R843 R844<br>R845 R846 R847<br>R848 R849 R850<br>R851 R852 R853<br>R854 R855 R856<br>R857 R858 R859<br>R860 R861 R862<br>R863 R864 R865<br>R866 R867 R868<br>R869 R870 R871<br>R872 R873 R874<br>R875 R876 R877<br>R878 R879 R880<br>R881 R882 R883<br>R884 R885 R886<br>R887 R888 R889<br>R890 R891 R892<br>R893 R894 R895<br>R896 R897 R898<br>R899 R900 R901<br>R902 R903 R904<br>R905 R906 R907<br>R908 R909 R910<br>R911 R912 R913<br>R914 R915 R916<br>R917 R918 R919<br>R920 R921 R922<br>R923 R924 R925<br>R926 R927 R928<br>R929 R930 R931<br>R932 R933 R934<br>R935 R936 R937<br>R938 R939 R940<br>R941 R942 R943<br>R944 R945 R946<br>R947 R948 R949<br>R950 R951 R952                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DXC-930 LU 30261 and higher<br>DXC-930 RU 10271 and higher<br>DXC-930E KC 10481 and higher<br>XC-940M0 RU 10051 and higher<br>XC-009P LU 10171 and higher<br>XC-009P LU 10061 and higher |                                                                                                                                                                                         |
| #3 | R197: 2.4 → 2.2K<br>R198: 2.7 → 3.3K<br>R199: 4700 → 1.8K<br>R202: 470 → 1.8K<br>R244: 0.0 3.3K → 1K<br>R245: 2.2 → 1K<br>R273 P1: 100K → 2.2K<br>R274 P1: 100K → 2.2K<br>R275 P1: 100K → 2.2K<br>R276 P1: 100K → 2.2K<br>R277 P1: 100K → 2.2K<br>R278 P1: 100K → 2.2K<br>R279 P1: 100K → 2.2K<br>R280 P1: 100K → 2.2K<br>R281 P1: 100K → 2.2K<br>R282 P1: 100K → 2.2K<br>R283 P1: 100K → 2.2K<br>R284 P1: 100K → 2.2K<br>R285 P1: 100K → 2.2K<br>R286 P1: 100K → 2.2K<br>R287 P1: 100K → 2.2K<br>R288 P1: 100K → 2.2K<br>R289 P1: 100K → 2.2K<br>R290 P1: 100K → 2.2K<br>R291 P1: 100K → 2.2K<br>R292 P1: 100K → 2.2K<br>R293 P1: 100K → 2.2K<br>R294 P1: 100K → 2.2K<br>R295 P1: 100K → 2.2K<br>R296 P1: 100K → 2.2K<br>R297 P1: 100K → 2.2K<br>R298 P1: 100K → 2.2K<br>R299 P1: 100K → 2.2K<br>R300 P1: 100K → 2.2K<br>R301 P1: 100K → 2.2K<br>R302 P1: 100K → 2.2K<br>R303 P1: 100K → 2.2K<br>R304 P1: 100K → 2.2K<br>R305 P1: 100K → 2.2K<br>R306 P1: 100K → 2.2K<br>R307 P1: 100K → 2.2K<br>R308 P1: 100K → 2.2K<br>R309 P1: 100K → 2.2K<br>R310 P1: 100K → 2.2K<br>R311 P1: 100K → 2.2K<br>R312 P1: 100K → 2.2K<br>R313 P1: 100K → 2.2K<br>R314 P1: 100K → 2.2K<br>R315 P1: 100K → 2.2K<br>R316 P1: 100K → 2.2K<br>R317 P1: 100K → 2.2K<br>R318 P1: 100K → 2.2K<br>R319 P1: 100K → 2.2K<br>R320 P1: 100K → 2.2K<br>R321 P1: 100K → 2.2K<br>R322 P1: 100K → 2.2K<br>R323 P1: 100K → 2.2K<br>R324 P1: 100K → 2.2K<br>R325 P1: 100K → 2.2K<br>R326 P1: 100K → 2.2K<br>R327 P1: 100K → 2.2K<br>R328 P1: 100K → 2.2K<br>R329 P1: 100K → 2.2K<br>R330 P1: 100K → 2.2K<br>R331 P1: 100K → 2.2K<br>R332 P1: 100K → 2.2K<br>R333 P1: 100K → 2.2K<br>R334 P1: 100K → 2.2K<br>R335 P1: 100K → 2.2K<br>R336 P1: 100K → 2.2K<br>R337 P1: 100K → 2.2K<br>R338 P1: 100K → 2.2K<br>R339 P1: 100K → 2.2K<br>R340 P1: 100K → 2.2K<br>R341 P1: 100K → 2.2K<br>R342 P1: 100K → 2.2K<br>R343 P1: 100K → 2.2K<br>R344 P1: 100K → 2.2K<br>R345 P1: 100K → 2.2K<br>R346 P1: 100K → 2.2K<br>R347 P1: 100K → 2.2K<br>R348 P1: 100K → 2.2K<br>R349 P1: 100K → 2.2K<br>R350 P1: 100K → 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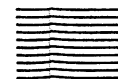
\*A

|                |                |
|----------------|----------------|
| 0XC-930 (L)    | 30001 to 30280 |
| 0XC-930 (UC)   | 10001 to 10270 |
| 0XC-930P (EK)  | 10001 to 10480 |
| 0XC-960MD (UC) | 10001 to 10050 |
| XC-009 (L)     | 10001 to 10170 |
| XC-009P (L)    | 10001 to 10060 |





IF-354/354P



IF-354/354P

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C-19

C

D

E

F

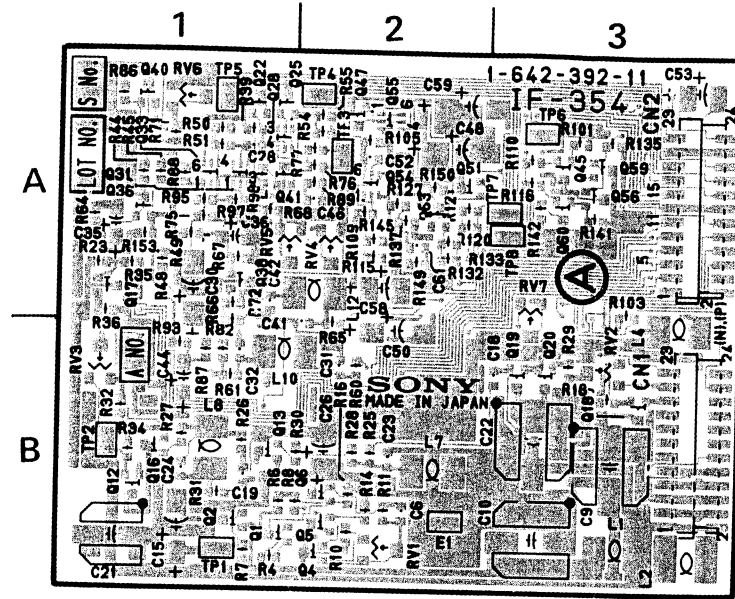
C-20

G

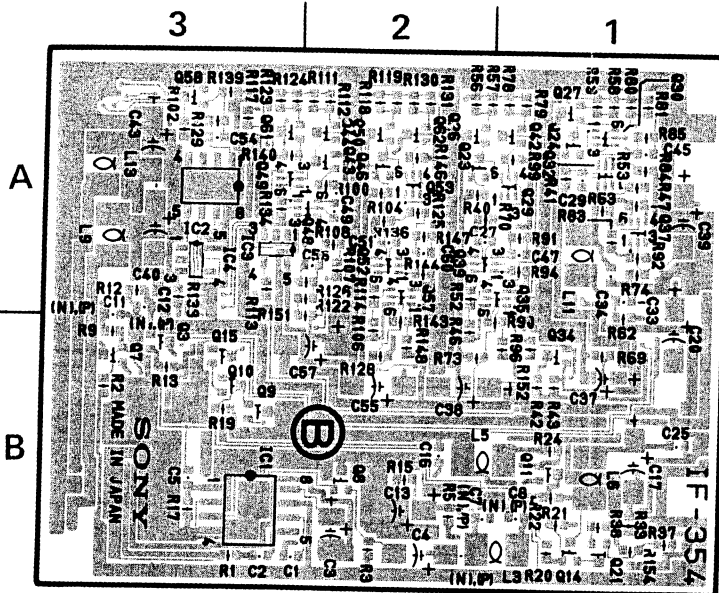
H

# IF-354/354P BOARD

Serial No. 30001-30280 DXC-930 (J)  
10001-10270 DXC-930 (UC)  
10001-10480 DXC-930P (EK)  
10001-10050 DXC-960MD (UC)  
10001-10170 XC-009 (J)  
10001-10060 XC-009P (EK)



1-642-392-11 COMPONENT SIDE



1-642-392-11 SOLDERING SIDE

## IF-354/354P (1-642-392-11)

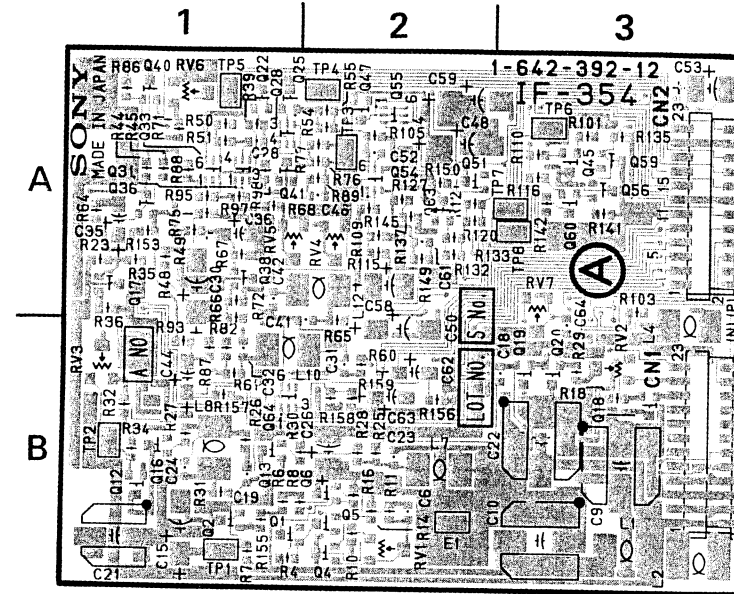
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|-----|-----|-----|-----|
| CN1 | B-3 | Q55 | A-2 |
| CN2 | A-3 | Q56 | A-3 |
| E1  | B-2 | Q57 | A-2 |
| IC1 | B-2 | Q58 | A-3 |
| IC2 | A-3 | Q59 | A-3 |
| IC3 | A-3 | Q60 | A-3 |
| IC4 | A-3 | Q61 | A-3 |
|     |     | Q62 | A-2 |
|     |     | Q63 | A-2 |
| Q1  | B-1 | RV1 | B-2 |
| Q2  | B-1 | RV2 | B-3 |
| Q3  | B-3 | RV3 | B-1 |
| Q4  | B-2 | RV4 | A-2 |
| Q5  | B-2 | RV5 | A-1 |
| Q6  | B-2 | RV6 | A-1 |
| Q7  | B-3 | RV7 | A-3 |
| Q8  | B-2 |     |     |
| Q9  | B-3 | TP1 | B-1 |
| Q10 | B-3 | TP2 | B-1 |
| Q11 | B-1 | TP3 | A-2 |
| Q12 | B-1 | TP4 | A-2 |
| Q13 | B-1 | TP5 | A-1 |
| Q14 | B-1 | TP6 | A-3 |
| Q15 | B-3 | TP7 | A-3 |
| Q16 | B-1 | TP8 | A-3 |
| Q17 | A-1 |     |     |
| Q18 | B-3 |     |     |
| Q19 | B-3 |     |     |
| Q20 | B-3 |     |     |
| Q21 | B-1 |     |     |
| Q22 | A-1 |     |     |
| Q23 | A-2 |     |     |
| Q24 | A-1 |     |     |
| Q25 | A-1 |     |     |
| Q26 | A-2 |     |     |
| Q27 | A-1 |     |     |
| Q28 | A-1 |     |     |
| Q29 | A-1 |     |     |
| Q30 | A-1 |     |     |
| Q31 | A-1 |     |     |
| Q32 | A-1 |     |     |
| Q33 | A-1 |     |     |
| Q34 | B-1 |     |     |
| Q35 | A-1 |     |     |
| Q36 | A-1 |     |     |
| Q37 | A-1 |     |     |
| Q38 | A-1 |     |     |
| Q39 | A-2 |     |     |
| Q40 | A-1 |     |     |
| Q41 | A-1 |     |     |
| Q42 | A-1 |     |     |
| Q43 | A-2 |     |     |
| Q44 | A-2 |     |     |
| Q45 | A-3 |     |     |
| Q46 | A-2 |     |     |
| Q47 | A-2 |     |     |
| Q48 | A-2 |     |     |
| Q49 | A-3 |     |     |
| Q50 | A-2 |     |     |
| Q51 | A-2 |     |     |
| Q52 | A-2 |     |     |
| Q53 | A-2 |     |     |
| Q54 | A-2 |     |     |

## IF-354/354P

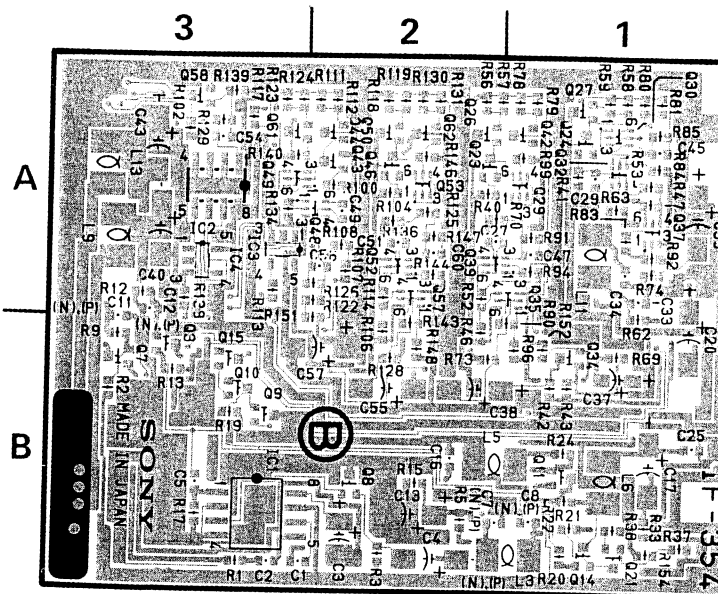
## IF-354/354P

# IF-354/354P BOARD

Serial No. 30281-10271 DXC-930 (J)  
10271-10481 DXC-930 (UC)  
10481-50001 DXC-930P (EK)  
50001-10051 DXC-930P (UC)  
10051-10171 DXC-960MD (UC)  
10171-10061 XC-009 (J)  
10061- XC-009P (EK)



1-642-392-12 COMPONENT SIDE



1-642-392-12 SOLDERING SIDE

## IF-354/354P (1-642-392-12)

|     |     |     |     |
|-----|-----|-----|-----|
| CN1 | B-3 | Q55 | A-2 |
| CN2 | A-3 | Q56 | A-3 |
| E1  | B-2 | Q57 | A-2 |
| IC1 | B-3 | Q58 | A-3 |
| IC2 | A-3 | Q59 | A-3 |
| IC3 | A-3 | Q60 | A-3 |
| IC4 | A-3 | Q61 | A-3 |
|     |     | Q62 | A-2 |
|     |     | Q63 | A-2 |
|     |     | Q64 | B-1 |
| Q1  | B-1 | RV1 | B-2 |
| Q2  | B-1 | RV2 | B-3 |
| Q3  | B-3 | RV3 | B-1 |
| Q4  | B-2 | RV4 | A-2 |
| Q5  | B-2 | RV5 | A-1 |
| Q6  | B-2 | RV6 | A-1 |
| Q7  | B-3 | RV7 | A-3 |
| Q8  | B-2 |     |     |
| Q9  | B-3 |     |     |
| Q10 | B-3 | TP1 | B-1 |
| Q11 | B-1 | TP2 | B-1 |
| Q12 | B-1 | TP3 | A-2 |
| Q13 | B-1 | TP4 | A-2 |
| Q14 | B-1 | TP5 | A-1 |
| Q15 | B-3 | TP6 | A-3 |
| Q16 | B-1 | TP7 | A-3 |
| Q17 | A-1 | TP8 | A-3 |
| Q18 | B-3 |     |     |
| Q19 | B-3 |     |     |
| Q20 | B-3 |     |     |
| Q21 | B-1 |     |     |
| Q22 | A-1 |     |     |
| Q23 | A-2 |     |     |
| Q24 | A-1 |     |     |
| Q25 | A-1 |     |     |
| Q26 | A-2 |     |     |
| Q27 | A-1 |     |     |
| Q28 | A-1 |     |     |
| Q29 | A-1 |     |     |
| Q30 | A-1 |     |     |
| Q31 | A-1 |     |     |
| Q32 | A-1 |     |     |
| Q33 | A-1 |     |     |
| Q34 | B-1 |     |     |
| Q35 | A-1 |     |     |
| Q36 | A-1 |     |     |
| Q37 | A-1 |     |     |
| Q38 | A-1 |     |     |
| Q39 | A-2 |     |     |
| Q40 | A-1 |     |     |
| Q41 | A-1 |     |     |
| Q42 | A-1 |     |     |
| Q43 | A-2 |     |     |
| Q44 | A-2 |     |     |
| Q45 | A-3 |     |     |
| Q46 | A-2 |     |     |
| Q47 | A-2 |     |     |
| Q48 | A-2 |     |     |
| Q49 | A-3 |     |     |
| Q50 | A-2 |     |     |
| Q51 | A-2 |     |     |
| Q52 | A-2 |     |     |
| Q53 | A-2 |     |     |
| Q54 | A-2 |     |     |

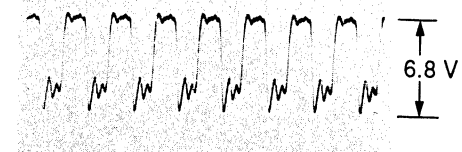


## IF-354/354P BOARD

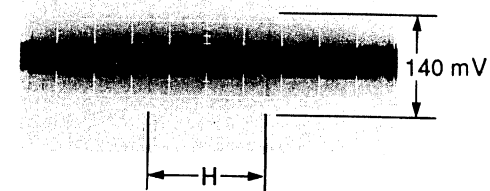
## NOTE:

- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom → "BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

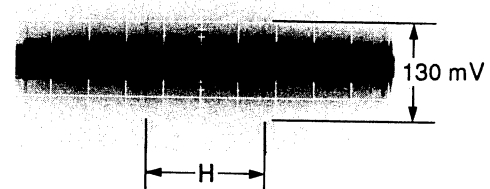
IF, CN1-10 14MHz



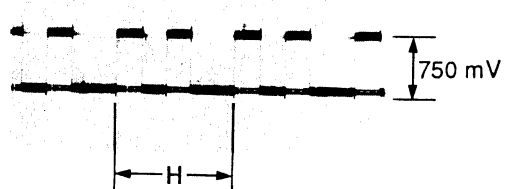
IF, CN1-21 G IE (LENS: CLOSE)



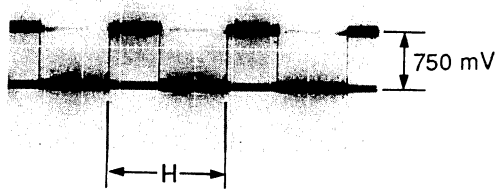
IF, CN1-19 R IE (LENS: CLOSE)



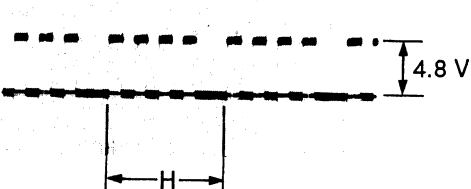
IF, CN2-1 R PR



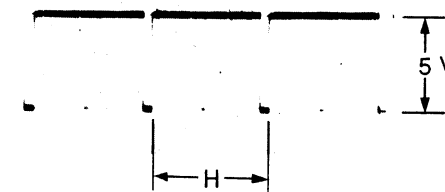
IF, CN2-3 G PR



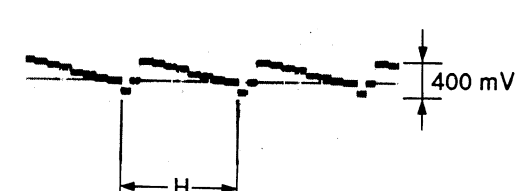
IF, CN2-5 B PR



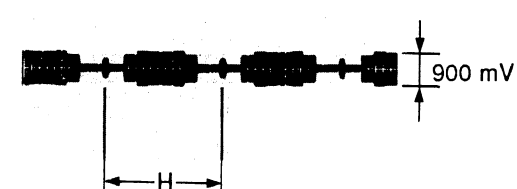
IF, CN2-8 SYNC



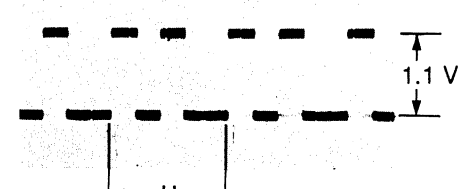
IF, CN2-9 Y



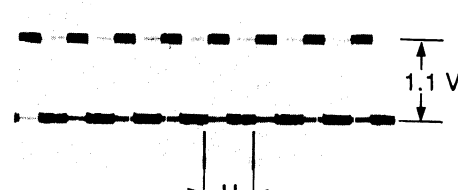
IF, CN2-11 CHROMA



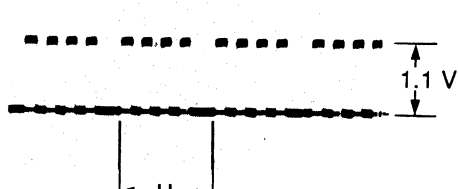
IF, CN2-16 R



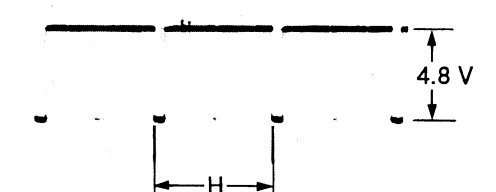
IF, CN2-18 G



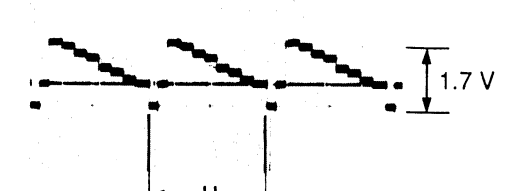
IF, CN2-20 B



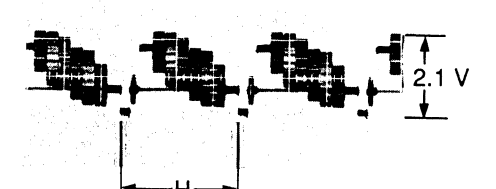
IF, CN2-15 SYNC



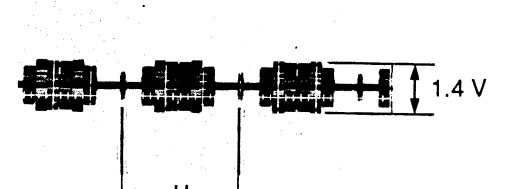
IF, CN2-24 Y



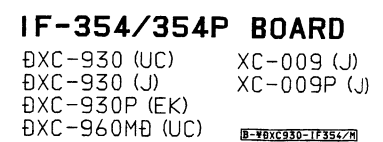
IF, CN2-12 VBS



IF, CN2-23 CHROMA



**IF-354/354P**



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AT-69

AT-69

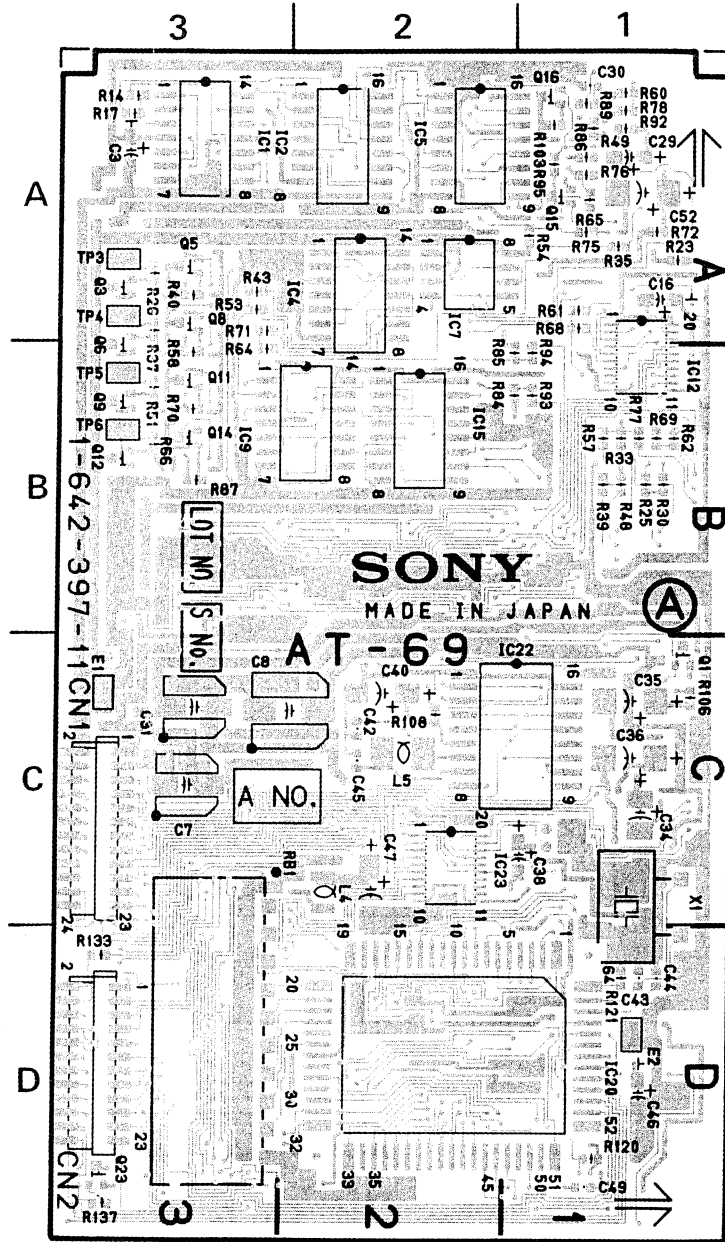
## AT-69 BOARD

AT-69 (1-642-397-11, 12)

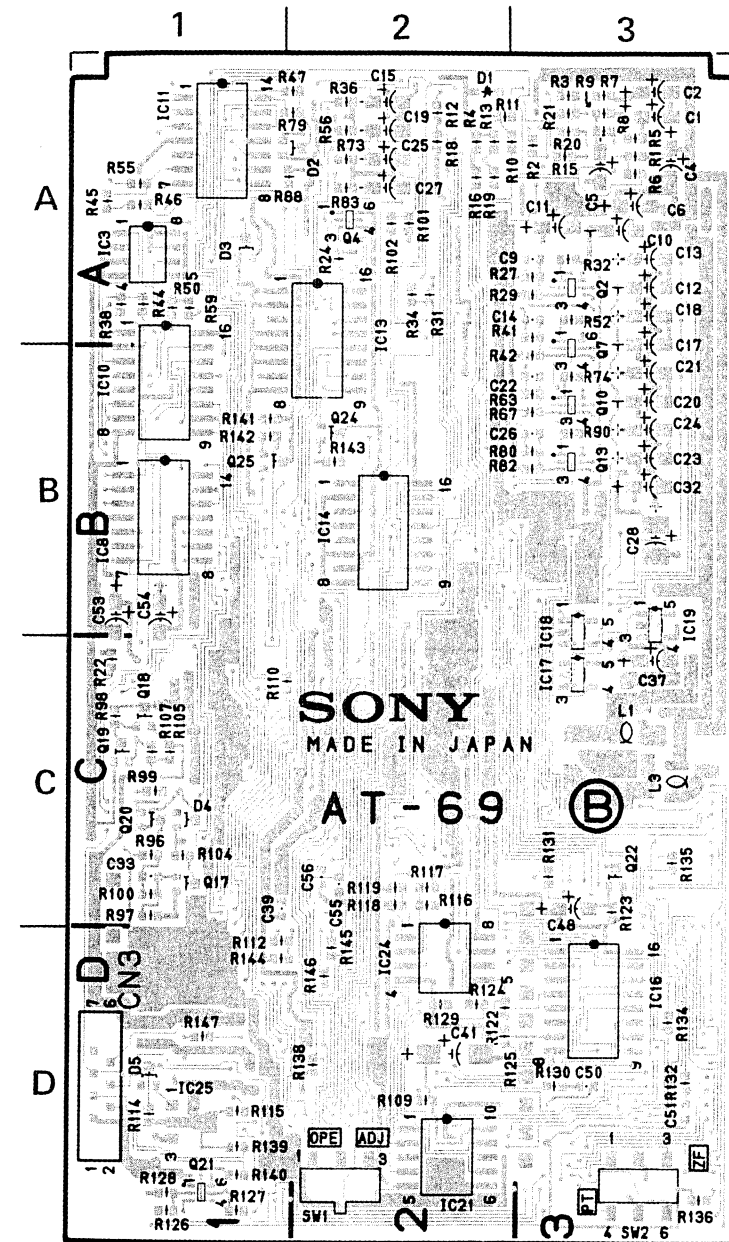
|     |     |     |     |
|-----|-----|-----|-----|
| CN1 | C-3 | RB1 | D-3 |
| CN2 | D-3 |     |     |
| D1  | A-2 | SW1 | D-2 |
| D2  | A-1 | SW2 | D-3 |
| D3  | A-1 | TP3 | A-3 |
| D4  | C-1 | TP4 | A-3 |
| D5  | D-1 | TP5 | B-3 |
|     |     | TP6 | B-3 |
| E1  | C-3 |     |     |
| E2  | D-1 | X1  | C-1 |

|      |     |
|------|-----|
| IC1  | A-3 |
| IC2  | A-2 |
| IC3  | A-1 |
| IC5  | A-1 |
| IC7  | A-1 |
| IC8  | B-1 |
| IC9  | B-3 |
| IC10 | B-1 |
| IC11 | A-1 |
| IC12 | B-1 |
| IC13 | A-1 |
| IC14 | B-2 |
| IC15 | B-2 |
| IC16 | D-3 |
| IC17 | C-3 |
| IC18 | B-3 |
| IC19 | B-3 |
| IC20 | D-1 |
| IC21 | D-2 |
| IC22 | C-1 |
| IC23 | C-2 |
| IC24 | D-2 |
| IC25 | D-1 |

|     |     |
|-----|-----|
| Q1  | C-1 |
| Q2  | A-3 |
| Q3  | A-3 |
| Q4  | A-2 |
| Q5  | A-3 |
| Q6  | B-3 |
| Q7  | B-3 |
| Q8  | A-3 |
| Q9  | B-3 |
| Q10 | B-3 |
| Q11 | B-3 |
| Q12 | B-3 |
| Q13 | B-3 |
| Q14 | B-3 |
| Q15 | A-1 |
| Q16 | A-1 |
| Q17 | C-1 |
| Q18 | C-1 |
| Q19 | C-1 |
| Q20 | C-1 |
| Q21 | D-1 |
| Q22 | C-3 |
| Q23 | D-3 |
| Q24 | B-2 |
| Q25 | B-1 |



1-642-397-11, 12 COMPONENT SIDE



1-642-397-11, 12 SOLDERING SIDE

AT-69 (1-642-397-11, 12)

|     |     |     |     |
|-----|-----|-----|-----|
| CN1 | C-3 | RB1 | D-3 |
| CN2 | D-3 |     |     |
| D1  | A-2 | SW1 | D-2 |
| D2  | A-1 | SW2 | D-3 |
| D3  | A-1 | TP3 | A-3 |
| D4  | C-1 | TP4 | A-3 |
| D5  | D-1 | TP5 | B-3 |
|     |     | TP6 | B-3 |
| E1  | C-3 |     |     |
| E2  | D-1 | X1  | C-1 |

|      |     |
|------|-----|
| IC1  | A-3 |
| IC2  | A-2 |
| IC3  | A-1 |
| IC5  | A-1 |
| IC7  | A-1 |
| IC8  | B-1 |
| IC9  | B-3 |
| IC10 | B-1 |
| IC11 | A-1 |
| IC12 | B-1 |
| IC13 | A-1 |
| IC14 | B-2 |
| IC15 | B-2 |
| IC16 | D-3 |
| IC17 | C-3 |
| IC18 | B-3 |
| IC19 | B-3 |
| IC20 | D-1 |
| IC21 | D-2 |
| IC22 | C-1 |
| IC23 | C-2 |
| IC24 | D-2 |
| IC25 | D-1 |

|     |     |
|-----|-----|
| Q1  | C-1 |
| Q2  | A-3 |
| Q3  | A-3 |
| Q4  | A-2 |
| Q5  | A-3 |
| Q6  | B-3 |
| Q7  | B-3 |
| Q8  | A-3 |
| Q9  | B-3 |
| Q10 | B-3 |
| Q11 | B-3 |
| Q12 | B-3 |
| Q13 | B-3 |
| Q14 | B-3 |
| Q15 | A-1 |
| Q16 | A-1 |
| Q17 | C-1 |
| Q18 | C-1 |
| Q19 | C-1 |
| Q20 | C-1 |
| Q21 | D-1 |
| Q22 | C-3 |
| Q23 | D-3 |
| Q24 | B-2 |
| Q25 | B-1 |

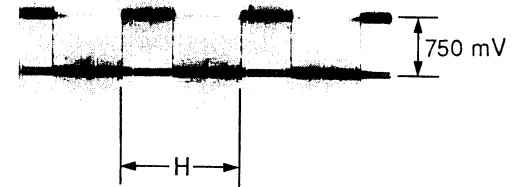


## AT-69 BOARD

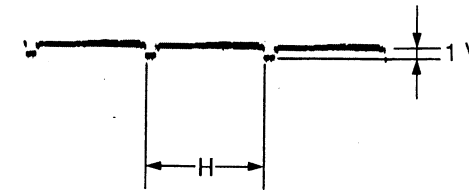
## NOTE:

- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom → "BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

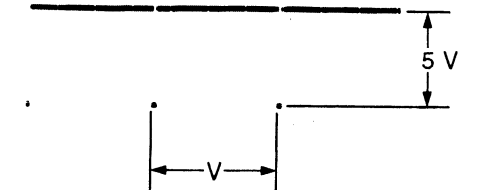
AT, CN2-5 G PR



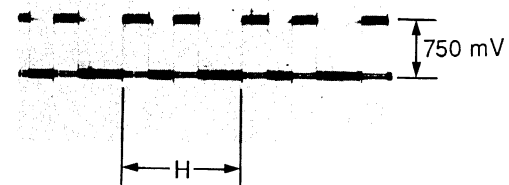
AT, CN1-10 Y (IRIS)



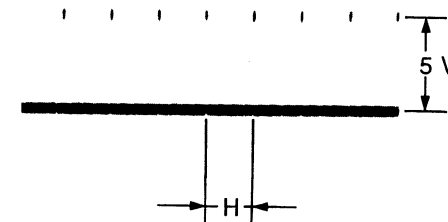
AT, CN2-2 VD



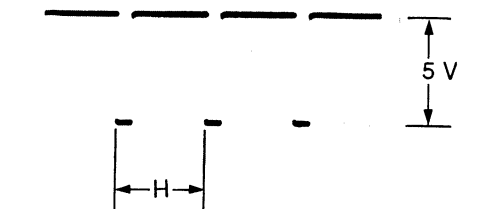
AT, CN2-3 R PR



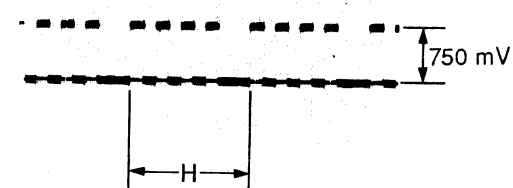
AT, CN1-8 CLP1



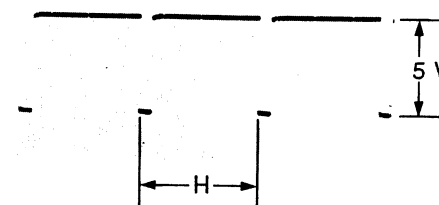
AT, CN2-1 BLKG



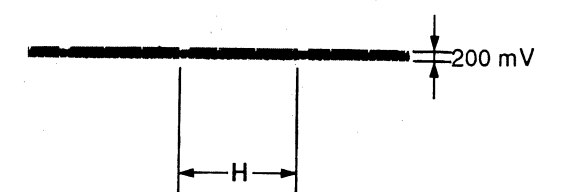
AT, CN2-7 B PR



AT, CN1-23 HD



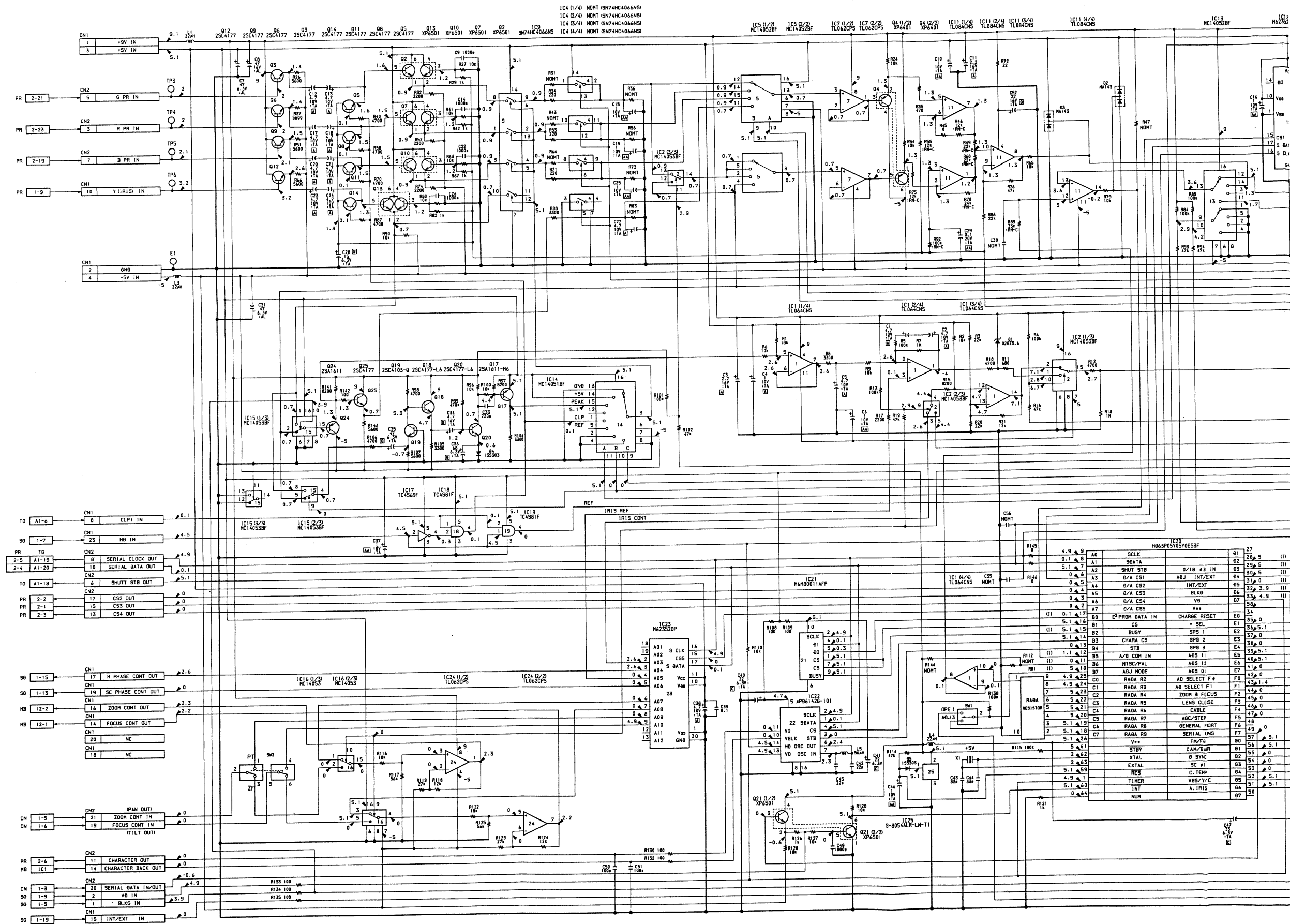
AT, CN1-13 REF PULSE





# AT-69 BOARD

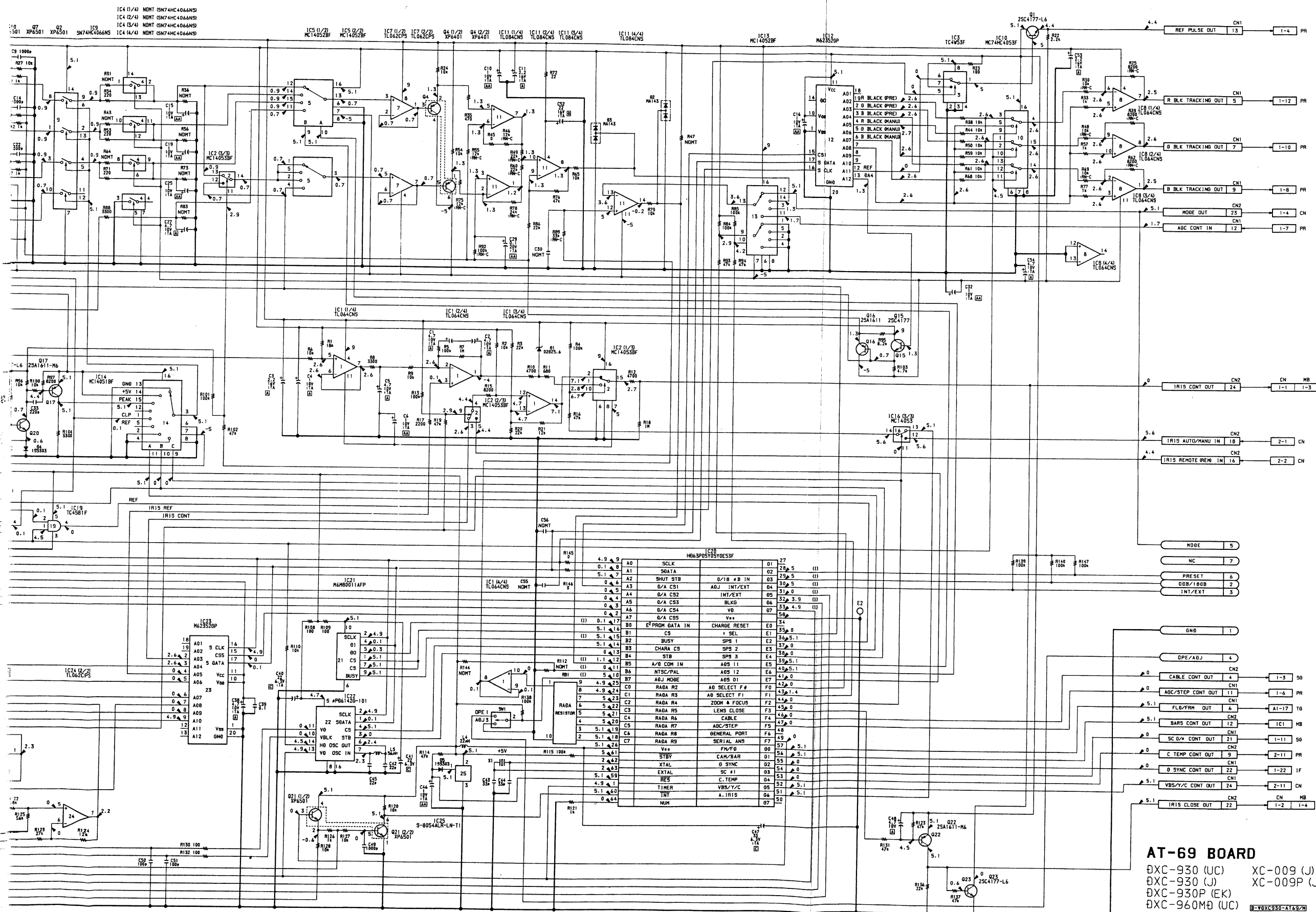
AT-69



DXC-930/930P  
DXC-960MD  
XC-009/009P

C-35

C-36



## AT-69 BOARD

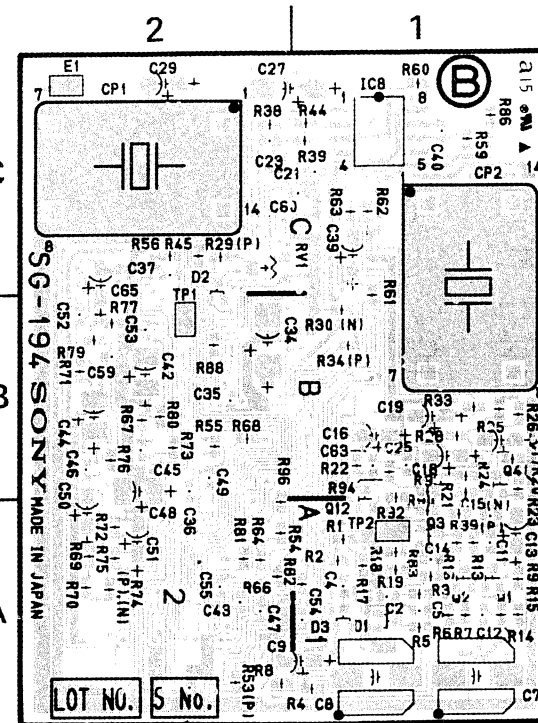
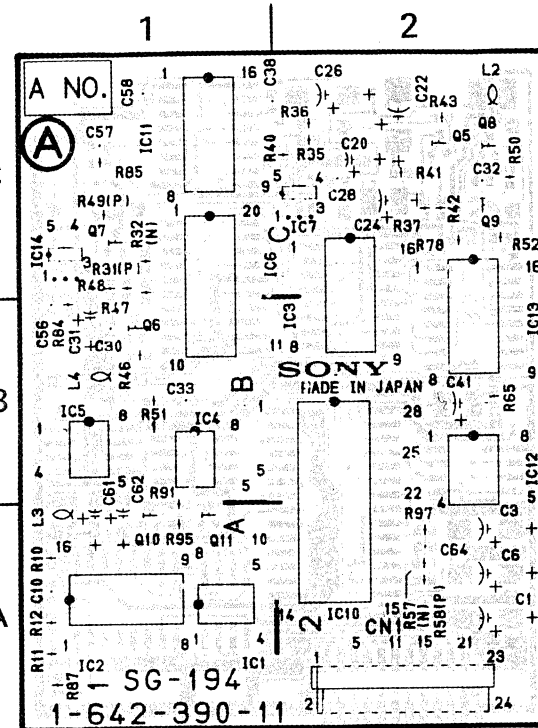
DXC-930 (UC) XC-009 (J)  
 DXC-930 (J) XC-009P (J)  
 DXC-930P (EK)  
 DXC-960MB (UC) B-DXC930-AT69/21

## SG-194/194P BOARD

Serial No. 30001-30230 DXC-930 (J)  
 10001-10170 DXC-930 (UC)  
 10001-10380 DXC-930P (EK)  
 10001-10050 DXC-960MD (UC)  
 10001-10170 XC-009 (J)  
 10001-10060 XC-009P (EK)

## SG-194/194P (1-642-390-11)

CN1 A-2  
 CP1 C-2  
 CP2 C-1  
 D1 A-1  
 D2 C-2  
 D3 A-1  
 E1 C-2  
 IC1 A-1  
 IC2 A-1  
 IC3 C-2  
 IC4 B-1  
 IC5 B-1  
 IC6 C-1  
 IC7 C-2  
 IC8 C-1  
 IC10 A-1  
 IC11 C-1  
 IC12 B-2  
 IC13 B-2  
 IC14 C-1  
 Q1 A-1  
 Q2 A-1  
 Q3 A-1  
 Q4 B-1  
 Q5 C-2  
 Q6 B-1  
 Q7 C-1  
 Q8 C-2  
 Q9 C-2  
 Q10 A-1  
 Q11 A-1  
 Q12 A-1  
 RV1 C-1  
 TP1 B-2  
 TP2 A-1

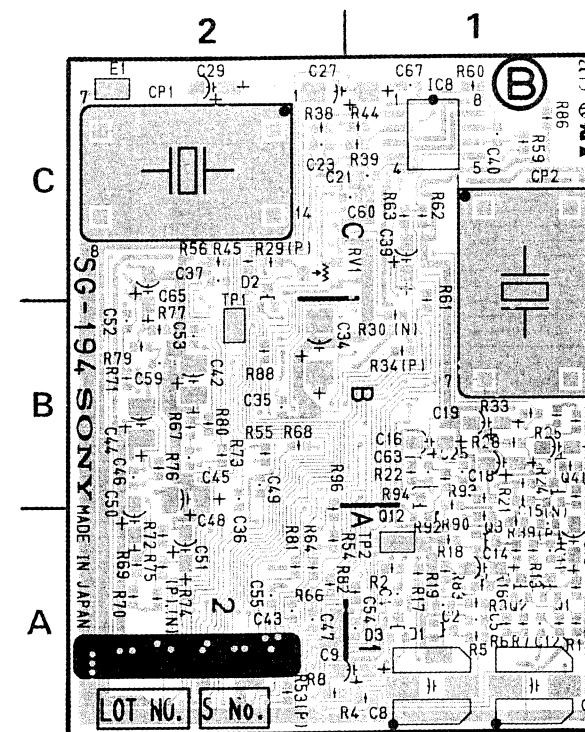
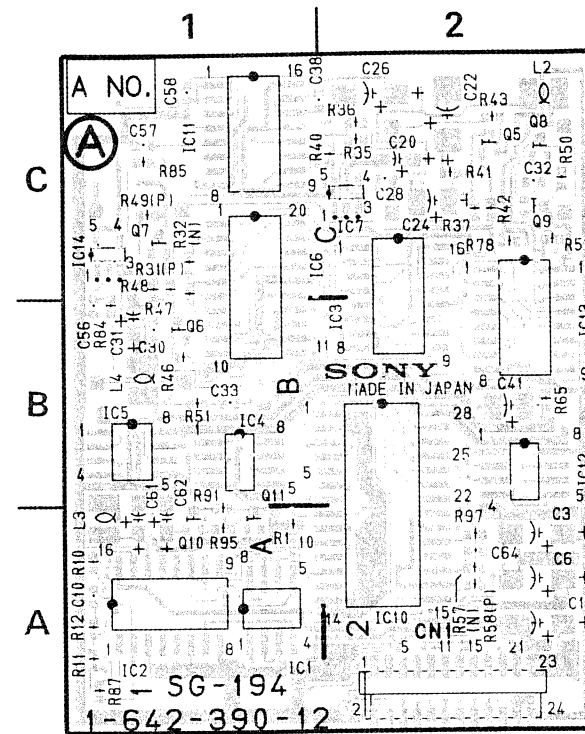


## SG-194/194P BOARD

Serial No. 30231-30480 DXC-930 (J)  
 10171-10570 DXC-930 (UC)  
 10381-10980 DXC-930P (EK)  
 10051-10250 DXC-960MD (UC)  
 10171-10320 XC-009 (J)  
 10061-10110 XC-009P (EK)

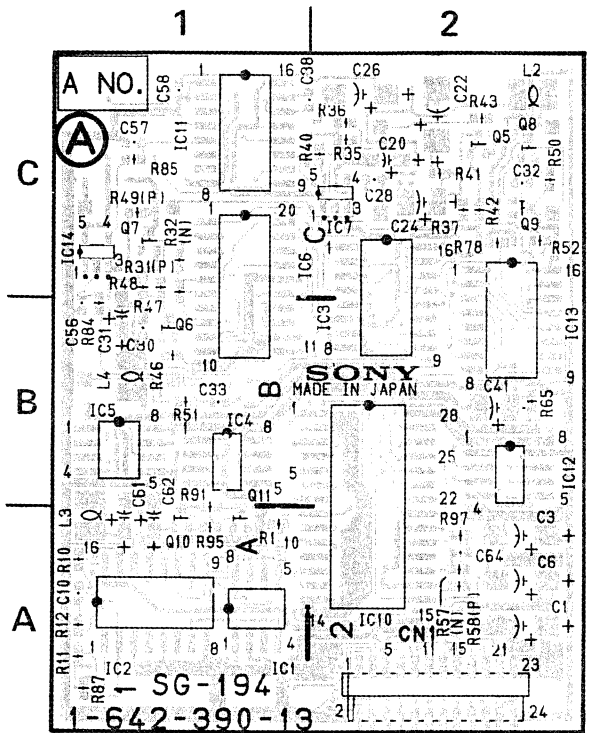
## SG-194/194P (1-642-390-12)

CN1 A-2  
 CP1 C-2  
 CP2 C-1  
 D1 A-1  
 D2 C-2  
 D3 A-1  
 E1 C-2  
 IC1 A-1  
 IC2 A-1  
 IC3 C-2  
 IC4 B-1  
 IC5 B-1  
 IC6 C-1  
 IC7 C-2  
 IC8 C-1  
 IC10 A-1  
 IC11 C-1  
 IC12 B-2  
 IC13 B-2  
 IC14 C-1  
 Q1 A-1  
 Q2 A-1  
 Q3 A-1  
 Q4 B-1  
 Q5 C-2  
 Q6 B-1  
 Q7 C-1  
 Q8 C-2  
 Q9 C-2  
 Q10 A-1  
 Q11 A-1  
 Q12 A-1  
 RV1 C-1  
 TP1 C-2  
 TP2 A-1



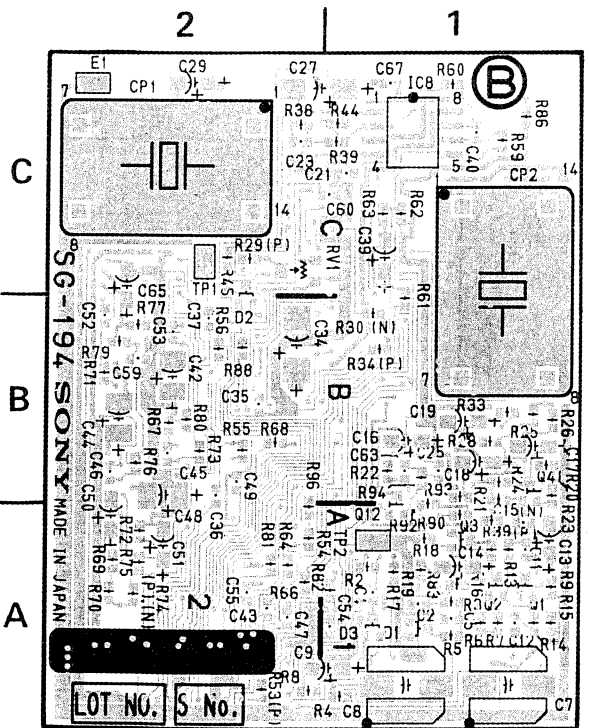
SG-194/194P BOARD

|                   |                |
|-------------------|----------------|
| Serial No. 30481- | DXC-930 (J)    |
| 10571-            | DXC-930 (UC)   |
| 10981-            | DXC-930P (EK)  |
| 50001-            | DXC-930P (UC)  |
| 10251-            | DXC-960MD (UC) |
| 10321-            | XC-009 (J)     |
| 10111-            | XC-009P (EK)   |



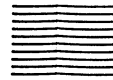
SG-194/194P (1-642-390-13)

|      |     |
|------|-----|
| CN1  | A-2 |
| CP1  | C-2 |
| CP2  | C-1 |
| D1   | A-1 |
| D2   | C-2 |
| D3   | A-1 |
| E1   | C-2 |
| IC1  | A-1 |
| IC2  | A-1 |
| IC3  | C-2 |
| IC4  | B-1 |
| IC5  | B-1 |
| IC6  | C-1 |
| IC7  | C-2 |
| IC8  | C-1 |
| IC10 | A-1 |
| IC11 | C-1 |
| IC12 | B-2 |
| IC13 | B-2 |
| IC14 | C-1 |
| Q1   | A-1 |
| Q2   | A-1 |
| Q3   | A-1 |
| Q4   | B-1 |
| Q5   | C-2 |
| Q6   | B-1 |
| Q7   | C-1 |
| Q8   | C-2 |
| Q9   | C-2 |
| Q10  | A-1 |
| Q11  | A-1 |
| Q12  | A-1 |
| RV1  | C-1 |
| TP1  | B-2 |
| TP2  | A-1 |



1-642-390-13 SOLDERING SIDE



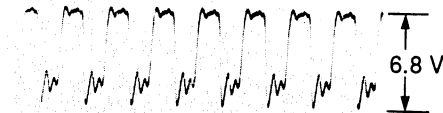


## SG-194/194P BOARD

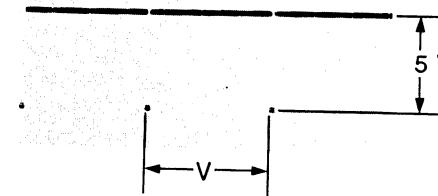
## NOTE:

- All voltage are DC, measured with a digital voltmeter.
- DC 電圧はデジタル電圧計による値
- DISPLAY/BARS bottom → "BARS"
- GAIN :00DB
- C. TEMP :3200K
- WHT. BAL :AUTO
- R GAIN :+00
- B GAIN :+00
- CCD IRIS :OFF
- SHUTTER :OFF

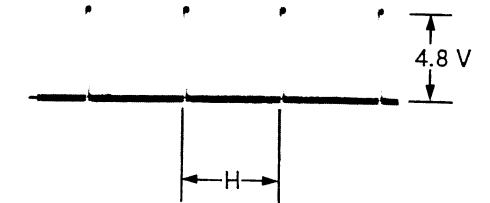
SG, CN1-20 14MHz



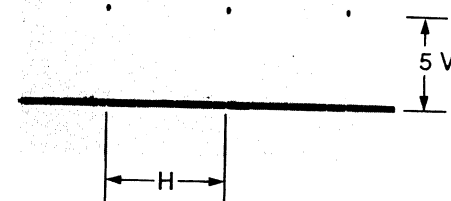
SG, CN1-9 VD



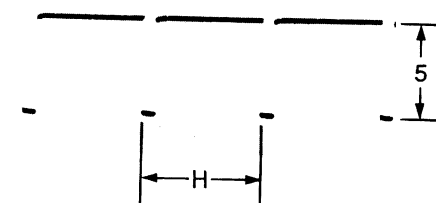
SG, CN1-8 BF



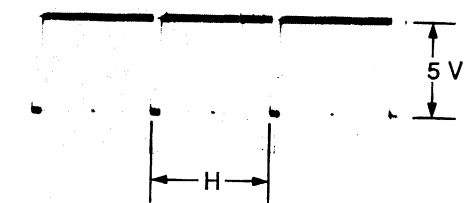
SG, CN1-16 CLP (AGC)



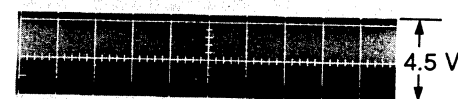
SG, CN1-7 HD



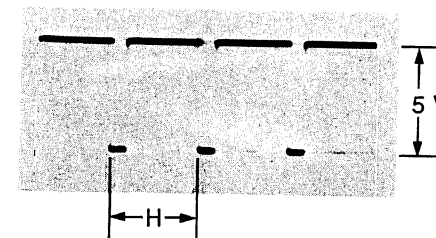
SG, CN1-14 SYNC



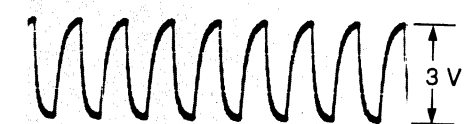
SG, CN1-17 28MHz



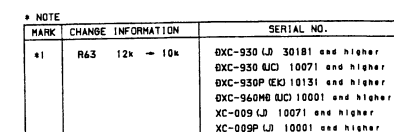
SG, CN1-5 BLKG



SG, CN1-12 SC



**SG-194/194P**



| * NOTE |        |        |
|--------|--------|--------|
| MARK   | CHANGE | INFORM |
| #2     | C67    | ADDED  |

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## H

## \* NOTE

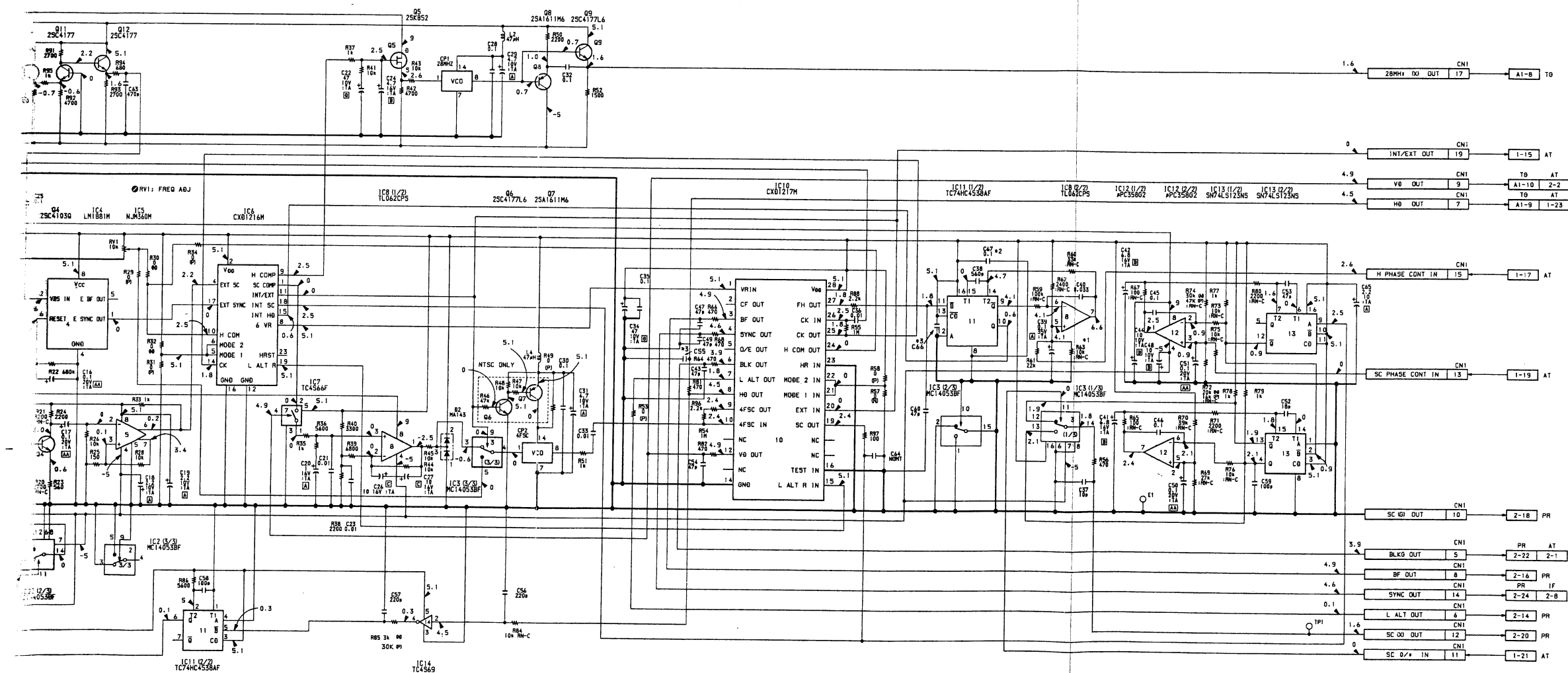
| MARK | CHANGE INFORMATION | SERIAL NO.                                                                                                                                                                                  |
|------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1   | R63 12k → 10k      | 0XC-930 LJ 30181 and higher<br>0XC-930 UJC 10071 and higher<br>0XC-930P EJC 10131 and higher<br>0XC-960MB UJC 10001 and higher<br>XC-009 LJ 10071 and higher<br>XC-009P LJ 10001 and higher |

## \* NOTE

| MARK | CHANGE INFORMATION | SERIAL NO.                                                                                                                                                                                  |
|------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #2   | C47 AB0E0          | 0XC-930 LJ 30231 and higher<br>0XC-930 UJC 10171 and higher<br>0XC-930P EJC 10381 and higher<br>0XC-960MB UJC 10051 and higher<br>XC-009 LJ 10171 and higher<br>XC-009P LJ 10061 and higher |

## \* NOTE

| MARK | CHANGE INFORMATION                       | SERIAL NO.                                                                                                                                                                                  |
|------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #3   | C55 (47u) DELETED<br>C66 (0.1uF) DELETED | 0XC-930 LJ 30281 and higher<br>0XC-930 UJC 10271 and higher<br>0XC-930P EJC 10481 and higher<br>0XC-960MB UJC 10051 and higher<br>XC-009 LJ 10171 and higher<br>XC-009P LJ 10061 and higher |



## SG-194/194P BOARD

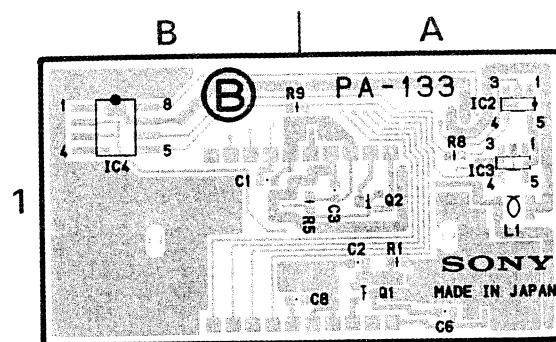
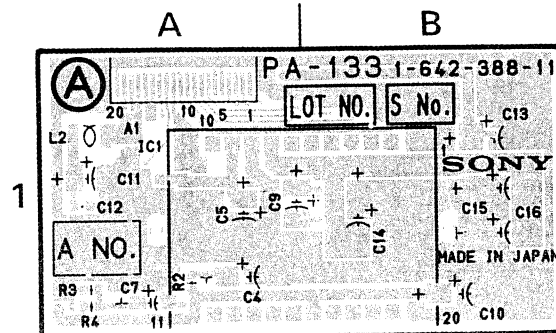
0XC-930 (UC) XC-009 (J)  
 0XC-930 (J) XC-009P (J)  
 0XC-930P (EK)  
 0XC-960MB (UC) 0XC-930-960MB



# PA-133 BOARD

PA-133 (1-642-388-11, 12)

- 1 IC2 A-1
- IC3 A-1
- IC4 B-1
- Q1 A-1
- Q2 A-1



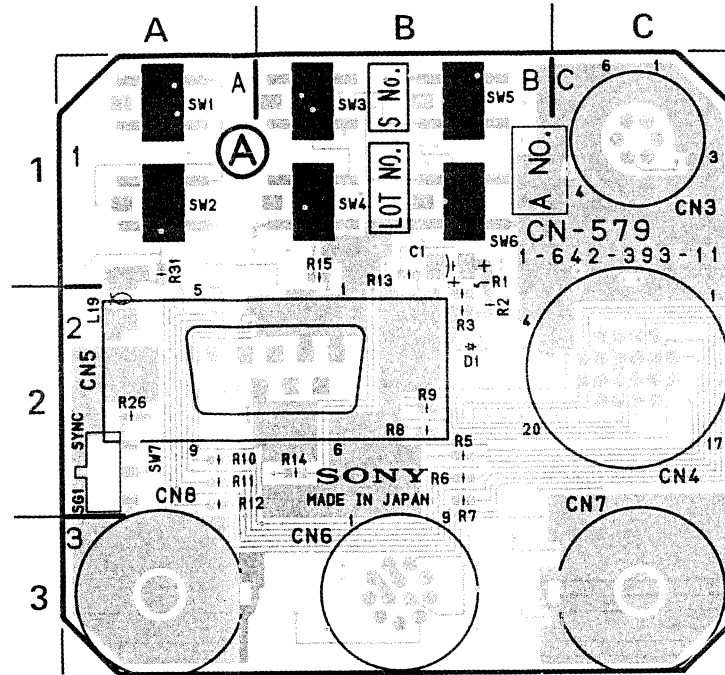
1-642-388-11, 12 SOLDERING SIDE

# CN-579 BOARD

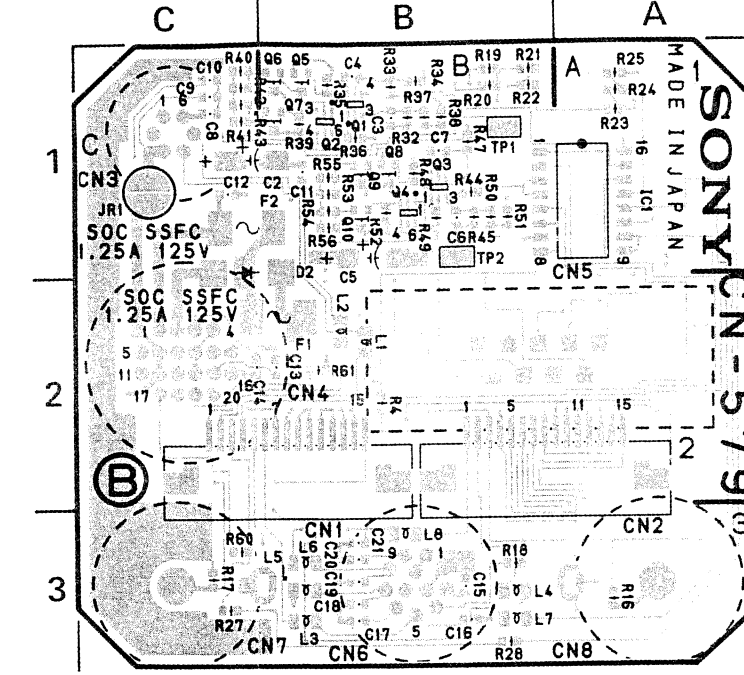
CN-579 (1-642-393-11)

Serial No. 30001-30230 DXC-930 (J)  
10001-10170 DXC-930 (UC)  
10001-10380 DXC-930P (EK)  
10001-10050 DXC-960MD (UC)  
10001-10170 XC-009 (J)  
10001-10060 XC-009P (EK)

- |     |     |
|-----|-----|
| CN1 | B-2 |
| CN2 | A-2 |
| D1  | B-2 |
| D2  | C-2 |
| F1  | B-2 |
| F2  | C-1 |
| IC1 | A-1 |
| Q1  | B-1 |
| Q2  | B-1 |
| Q3  | B-1 |
| Q4  | B-1 |
| Q5  | B-1 |
| Q6  | B-1 |
| Q7  | B-1 |
| Q8  | B-1 |
| Q9  | B-1 |
| Q10 | B-1 |
| SW1 | A-1 |
| SW2 | A-1 |
| SW3 | B-1 |
| SW4 | B-1 |
| SW5 | B-1 |
| SW6 | B-1 |
| SW7 | A-2 |
| TP1 | B-1 |
| TP2 | B-1 |

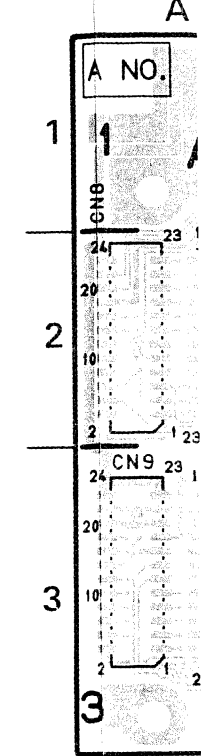


1-642-393-11 COMPONENT SIDE



1-642-393-11 SOLDERING SIDE

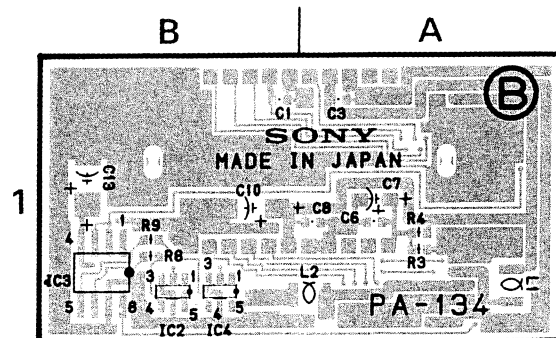
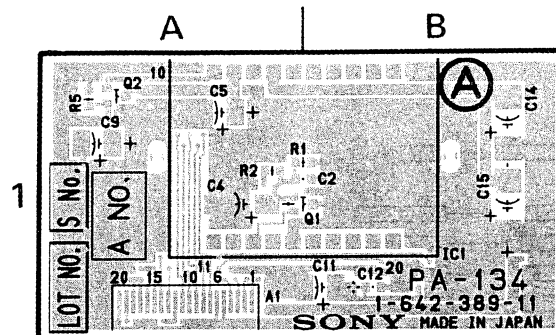
# MB-380 BOA



# PA-134 BOARD

PA-134 (1-642-389-11, 12)

- 1 IC2 B-1
- IC3 B-1
- IC4 B-1
- Q1 B-1
- Q2 A-1

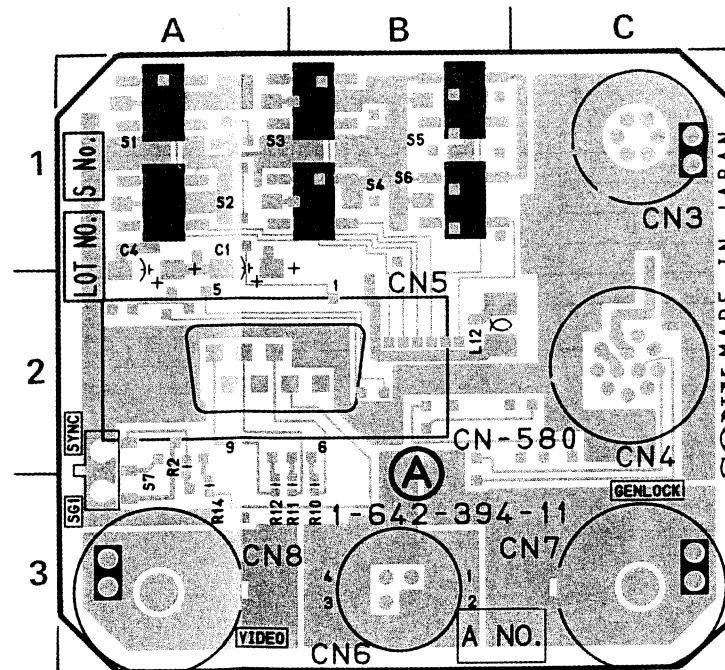


1-642-389-11, 12 SOLDERING SIDE

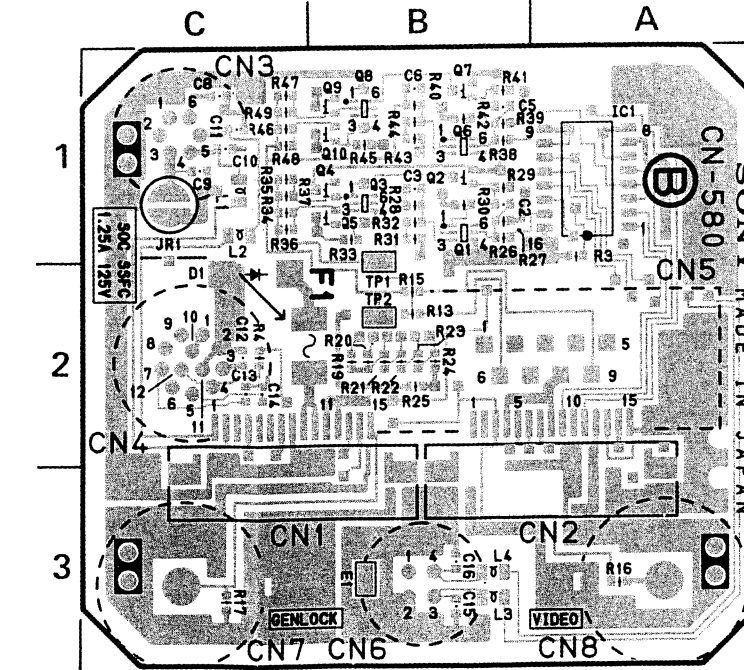
# CN-580 BOARD

CN-580 (1-642-394-11)

- |     |     |
|-----|-----|
| CN1 | C-2 |
| CN2 | A-2 |
| D1  | C-1 |
| F1  | B-2 |
| IC1 | A-1 |
| Q1  | B-1 |
| Q2  | B-1 |
| Q3  | B-1 |
| Q4  | B-1 |
| Q5  | B-1 |
| Q6  | B-1 |
| Q7  | B-1 |
| Q8  | B-1 |
| Q9  | B-1 |
| Q10 | B-1 |
| S1  | A-1 |
| S2  | A-1 |
| S3  | B-1 |
| S4  | B-1 |
| S5  | B-1 |
| S6  | B-1 |
| S7  | A-2 |
| TP1 | B-1 |
| TP2 | B-2 |



1-642-394-11 COMPONENT SIDE



1-642-394-11 SOLDERING SIDE

C-48 (a)

C-49 (a)

A

B

C

D

E

F

G

H

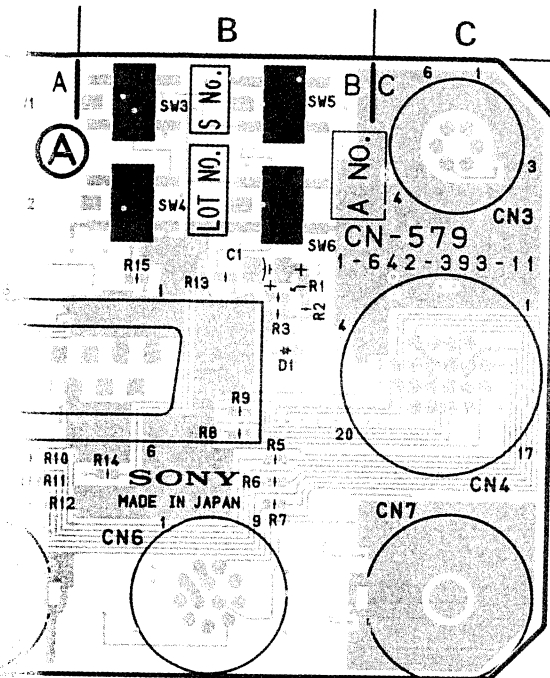
PA-133, PA-134, MB-380, CN-579, CN-580

PA-133, PA-134, MB-380, CN-579, CN-580

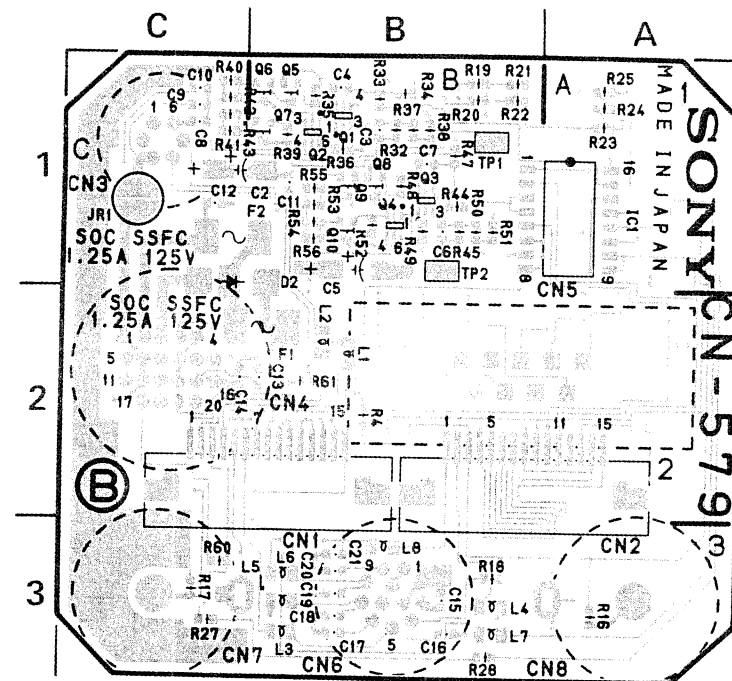
1-30230 DXC-930 (J)  
1-10170 DXC-930 (UC)  
1-10380 DXC-930P (EK)  
1-10050 DXC-960MD (UC)  
1-10170 XC-009 (J)  
1-10060 XC-009P (EK)

Serial No. 30001-30230 DXC-930 (J)  
10001-10170 DXC-930 (UC)  
10001-10380 DXC-930P (EK)  
10001-10050 DXC-960MD (UC)  
10001-10170 XC-009 (J)  
10001-10060 XC-009P (EK)

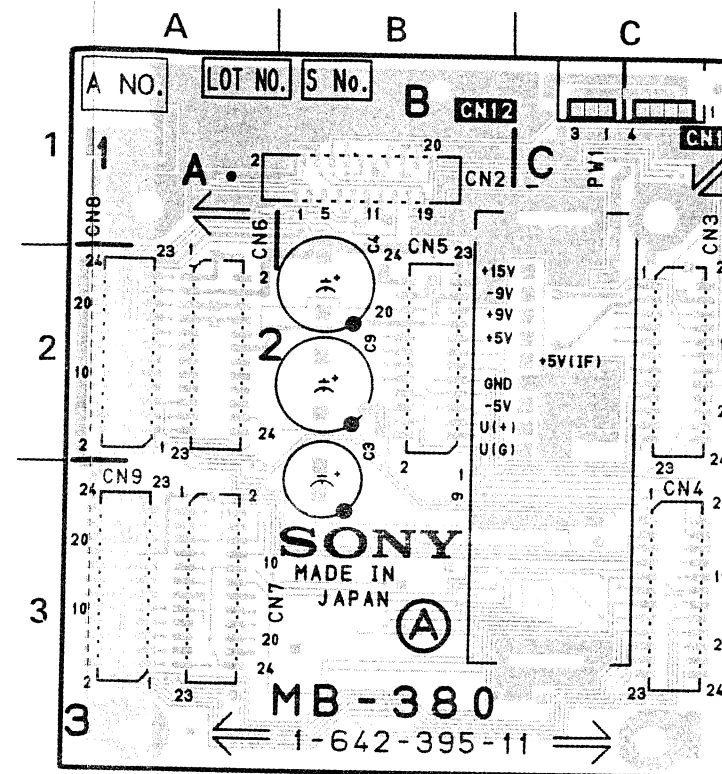
# MB-380 BOARD



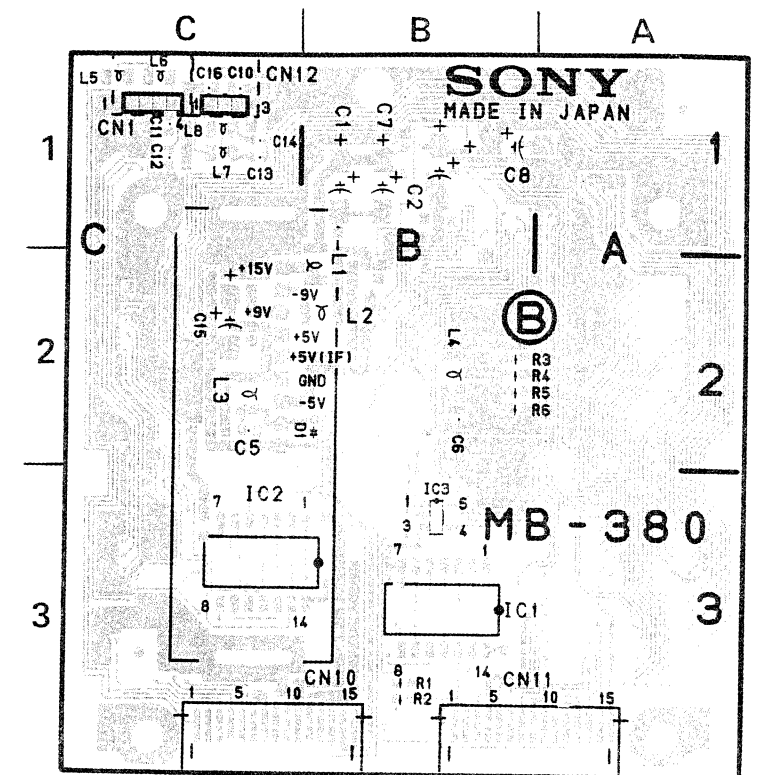
1-642-393-11 COMPONENT SIDE



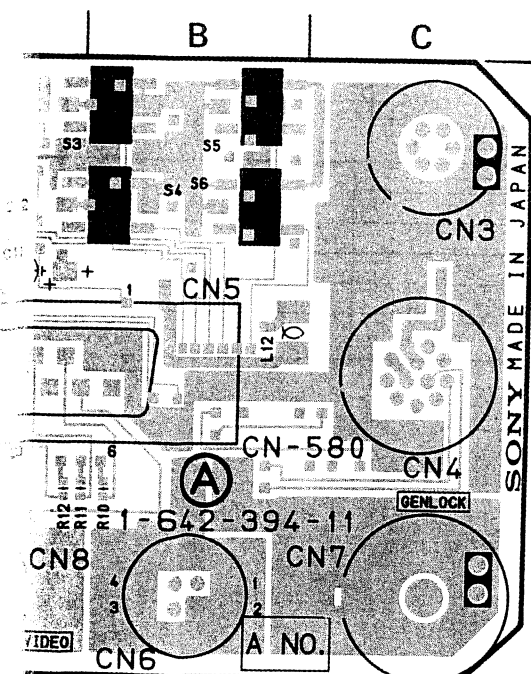
1-642-393-11 SOLDERING SIDE



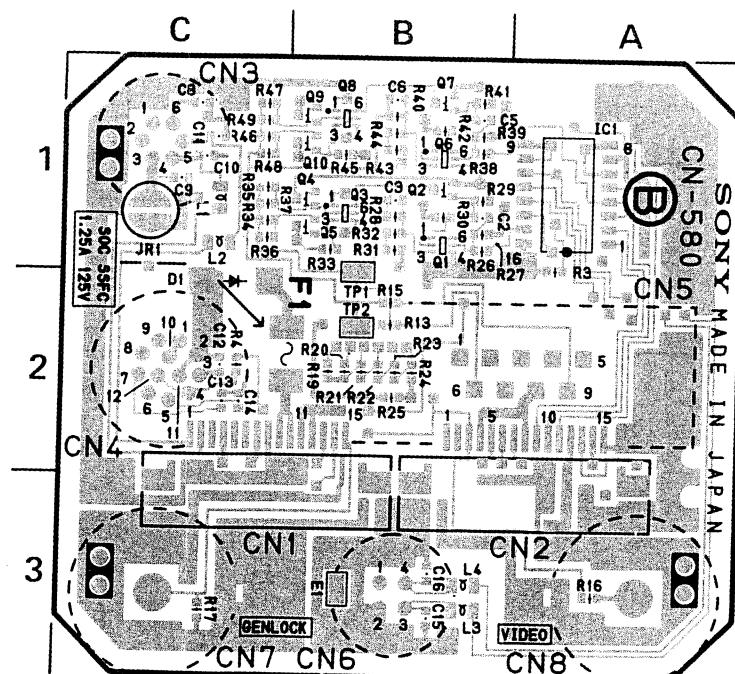
1-642-395-11 COMPONENT SIDE



1-642-395-11 SOLDERING SIDE



1-642-394-11 COMPONENT SIDE



1-642-394-11 SOLDERING SIDE

## MB-380 (1-642-395-11)

CN1 C-1  
CN2 B-1  
CN3 C-2  
CN4 C-3  
CN5 B-2  
CN6 A-2  
CN7 A-3  
CN8 A-2  
CN9 A-3  
CN10 C-3  
CN11 B-3  
CN12 C-1

D1 B-2

IC1 B-3

IC2 C-3

IC3 B-3

PW1 B-2

C-49 (a)

C-50 (a)

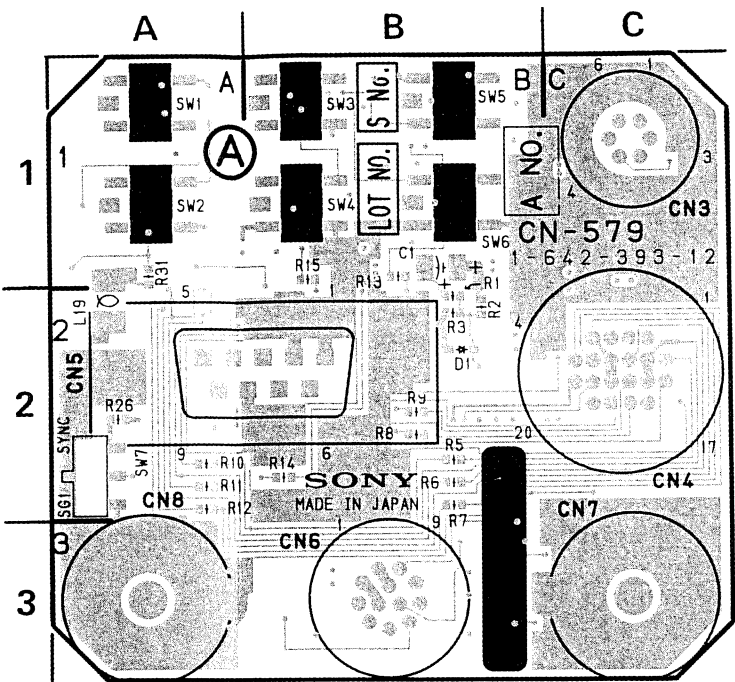
DXC-930/930P  
DXC-960MD  
XC-009/009P

CN-579 BOARD

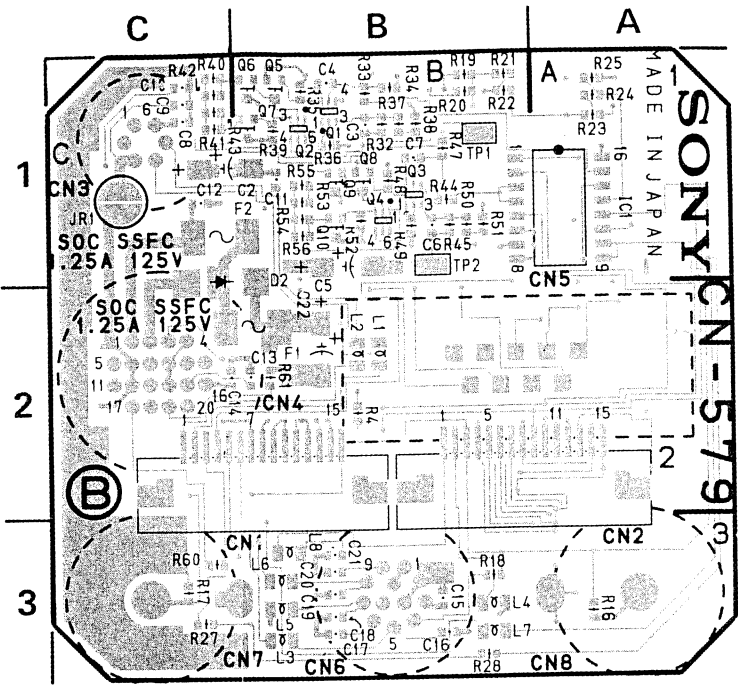
CN-579 (1-642-393-12)

|     |     |
|-----|-----|
| CN1 | B-2 |
| CN2 | A-2 |
| D1  | B-2 |
| D2  | C-2 |
| F1  | B-2 |
| F2  | C-1 |
| IC1 | A-1 |
| Q1  | B-1 |
| Q2  | B-1 |
| Q3  | B-1 |
| Q4  | B-1 |
| Q5  | B-1 |
| Q6  | B-1 |
| Q7  | B-1 |
| Q8  | B-1 |
| Q9  | B-1 |
| Q10 | B-1 |
| SW1 | A-1 |
| SW2 | A-1 |
| SW3 | B-1 |
| SW4 | B-1 |
| SW5 | B-1 |
| SW6 | B-1 |
| SW7 | A-2 |
| TP1 | B-1 |
| TP2 | B-1 |

|            |        |                |
|------------|--------|----------------|
| Serial No. | 30231- | DXC-930 (J)    |
|            | 10171- | DXC-930 (UC)   |
|            | 10381- | DXC-930P (EK)  |
|            | 50001- | DXC-930P (UC)  |
|            | 10051- | DXC-960MD (UC) |
|            | 10171- | XC-009 (J)     |
|            | 10061- | XC-009P (EK)   |

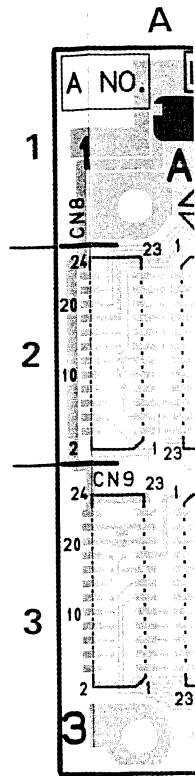


1-642-393-12 COMPONENT SIDE



1-642-393-12 SOLDERING SIDE

MB-380 BOAF

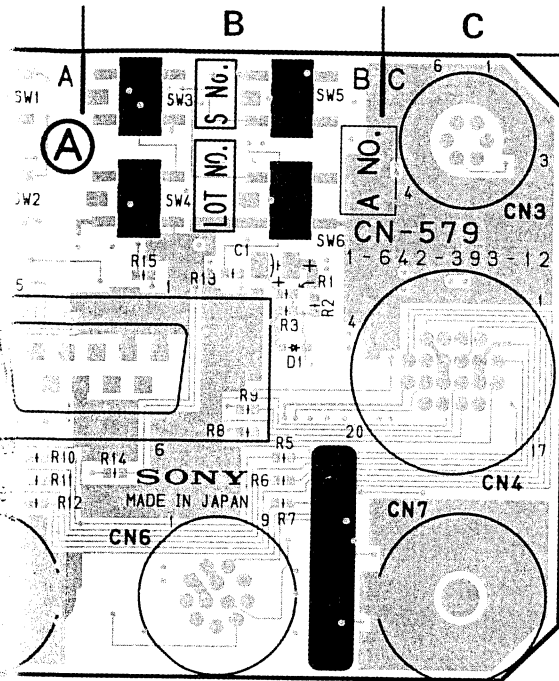




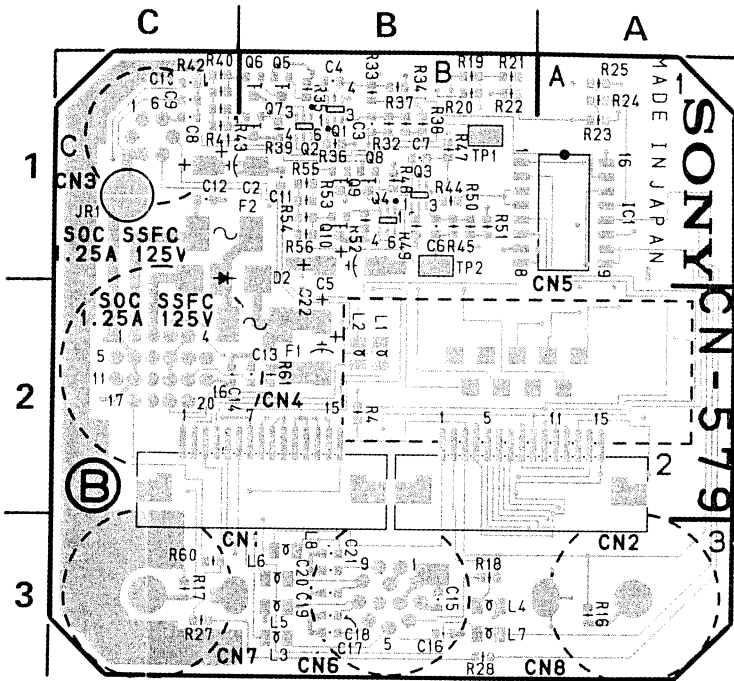
PA-133, PA-134, MB-380, CN-579, CN-580

PA-133, PA-134, MB-380, CN-579, CN-580

|      |                |
|------|----------------|
| 231- | DXC-930 (J)    |
| 174- | DXC-930 (UC)   |
| 381- | DXC-930P (EK)  |
| 001- | DXC-930P (UC)  |
| 051- | DXC-960MD (UC) |
| 74-  | XC-009 (J)     |
| 061- | XC-009P (EK)   |



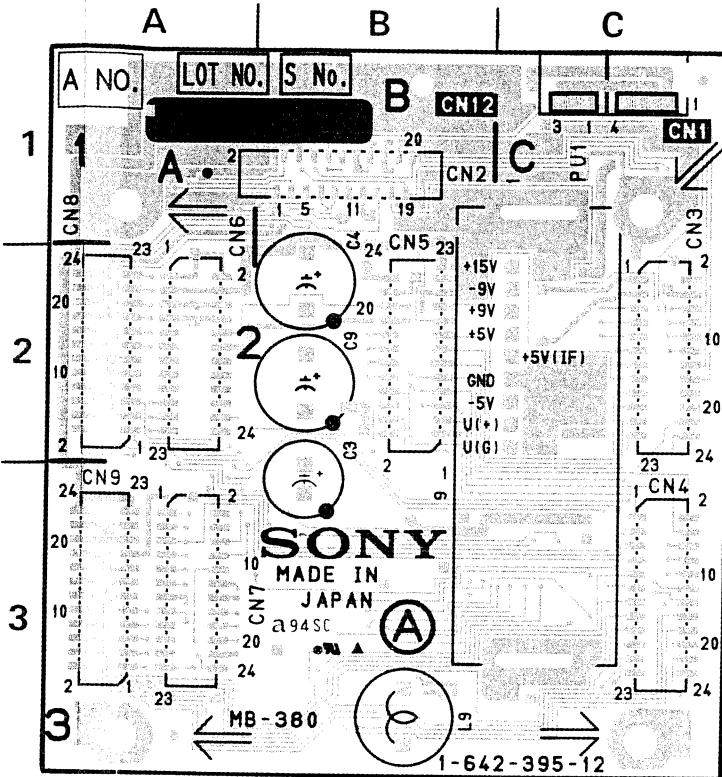
1-642-393-12 COMPONENT SIDE



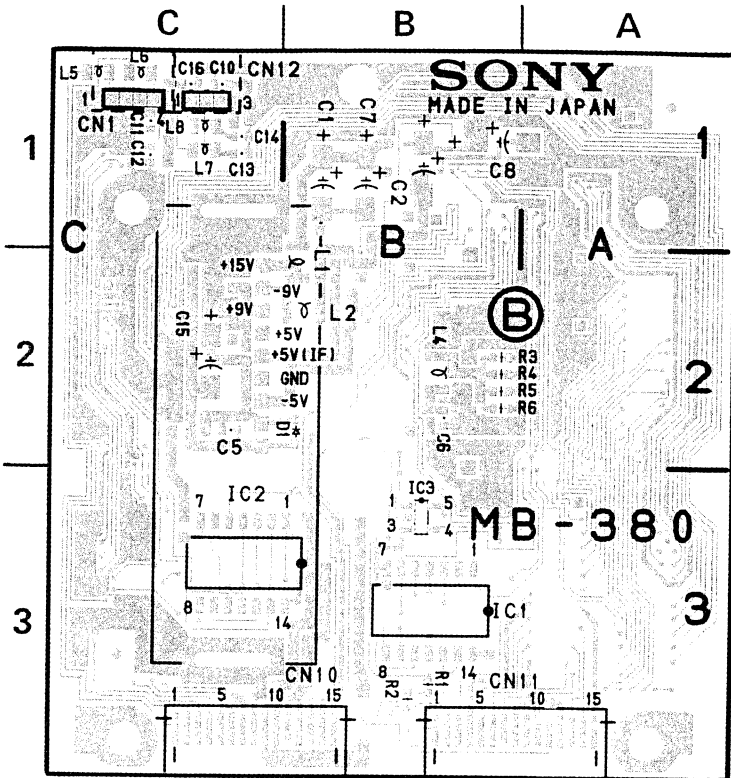
1-642-393-12 SOLDERING SIDE

MB-380 BOARD

|                   |                |
|-------------------|----------------|
| Serial No. 30231- | DXC-930 (J)    |
| 10171-            | DXC-930 (UC)   |
| 10381-            | DXC-930P (EK)  |
| 50001-            | DXC-930P (UC)  |
| 10051-            | DXC-960MD (UC) |
| 10171-            | XC-009 (J)     |
| 10061-            | XC-009P (EK)   |



1-642-395-12 COMPONENT SIDE



1-642-395-12 SOLDERING SIDE

MB-380 (1-642-395-12)

|      |     |
|------|-----|
| CN1  | C-1 |
| CN2  | B-1 |
| CN3  | C-2 |
| CN4  | C-3 |
| CN5  | B-2 |
| CN6  | A-2 |
| CN7  | A-3 |
| CN8  | A-2 |
| CN9  | A-3 |
| CN10 | C-3 |
| CN11 | B-3 |
| CN12 | C-1 |

|    |     |
|----|-----|
| D1 | B-2 |
|----|-----|

|     |     |
|-----|-----|
| IC1 | B-3 |
|-----|-----|

|     |     |
|-----|-----|
| IC2 | C-3 |
|-----|-----|

|     |     |
|-----|-----|
| IC3 | B-3 |
|-----|-----|

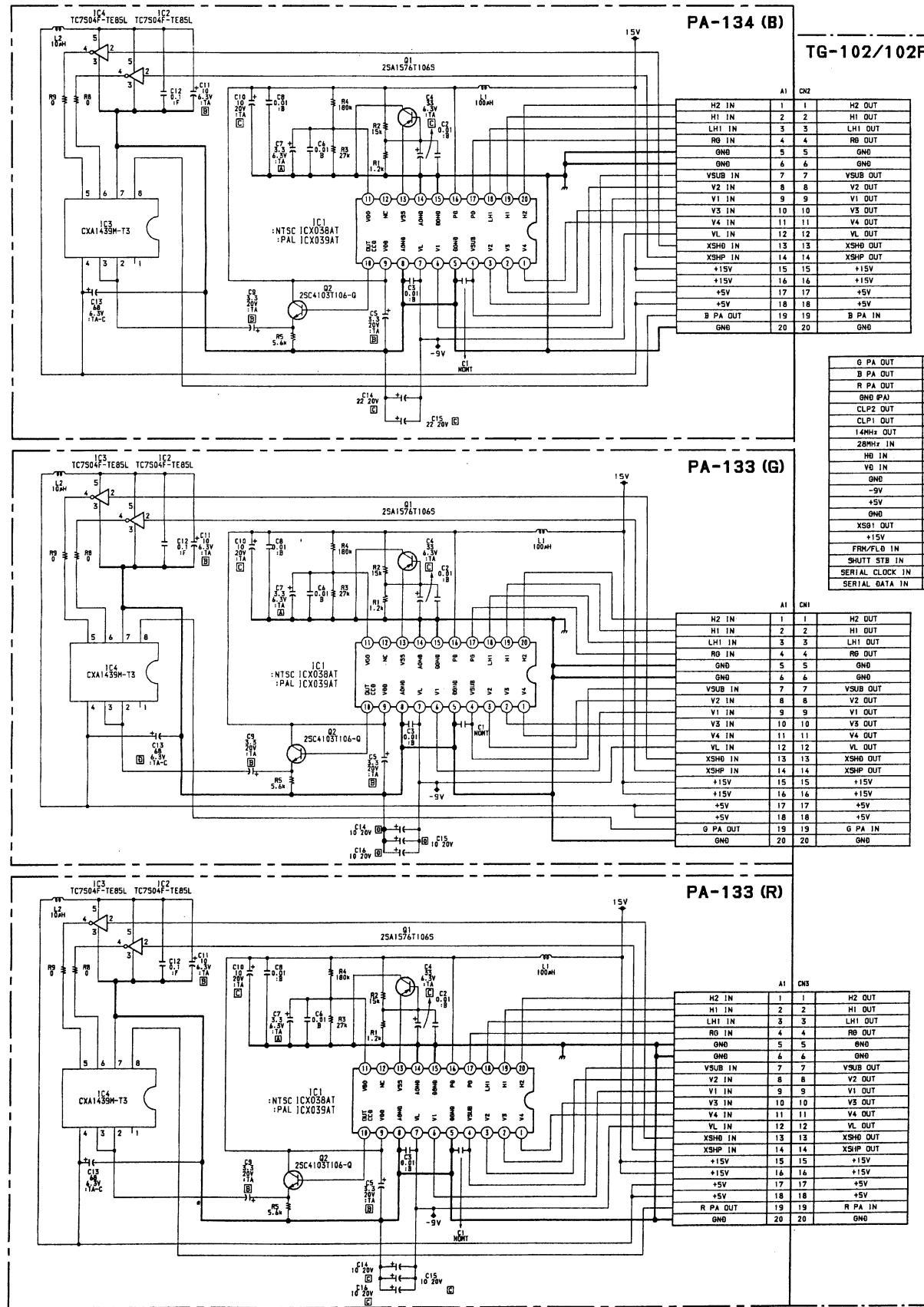
|     |     |
|-----|-----|
| PW1 | B-2 |
|-----|-----|

C-49 (b)

C-50 (b)

DXC-930/g 30P  
DXC-960MD  
XC-009/00 9P

FRAME WIRING  
PA-133/134 BOARD  
MB-380 BOARD  
CN-580 BOARD



PA-134 (B)  
TG-102/102P

MB-380

|    |          |    |          |
|----|----------|----|----------|
| 1  | H2 IN    | 11 | V4 IN    |
| 2  | H1 IN    | 12 | V4 OUT   |
| 3  | LH1 IN   | 13 | XSHD IN  |
| 4  | R0 IN    | 14 | XSHD OUT |
| 5  | GND      | 15 | +15V     |
| 6  | GND      | 16 | +15V     |
| 7  | VSUB IN  | 17 | +5V      |
| 8  | V2 IN    | 18 | +5V      |
| 9  | V1 IN    | 19 | B PA IN  |
| 10 | V3 IN    | 20 | GND      |
| 11 | V4 IN    |    |          |
| 12 | V4 OUT   |    |          |
| 13 | XSHD IN  |    |          |
| 14 | XSHD OUT |    |          |
| 15 | +15V     |    |          |
| 16 | +15V     |    |          |
| 17 | +5V      |    |          |
| 18 | +5V      |    |          |
| 19 | B PA IN  |    |          |
| 20 | GND      |    |          |

|    |                 |    |                 |
|----|-----------------|----|-----------------|
| 1  | G PA OUT        | 11 | GND             |
| 2  | B PA OUT        | 12 | -5V             |
| 3  | R PA IN         | 13 | +5V             |
| 4  | GND PAJ         | 14 | GND             |
| 5  | CLP2 OUT        | 15 | XSG1 IN         |
| 6  | CLP1 IN         | 16 | +15V            |
| 7  | 14MHz IN        | 17 | FRM/FLD OUT     |
| 8  | 28MHz IN        | 18 | SHUTT STB IN    |
| 9  | H0 IN           | 19 | SERIAL CLOCK IN |
| 10 | V0 IN           | 20 | SERIAL DATA IN  |
| 11 | GND             |    |                 |
| 12 | -5V             |    |                 |
| 13 | +5V             |    |                 |
| 14 | GND             |    |                 |
| 15 | XSG1 OUT        |    |                 |
| 16 | +15V            |    |                 |
| 17 | FRM/FLD IN      |    |                 |
| 18 | SHUTT STB IN    |    |                 |
| 19 | SERIAL CLOCK IN |    |                 |
| 20 | SERIAL DATA IN  |    |                 |

|    |          |    |          |
|----|----------|----|----------|
| 1  | H2 IN    | 11 | V4 IN    |
| 2  | H1 IN    | 12 | V4 OUT   |
| 3  | LH1 IN   | 13 | XSHD IN  |
| 4  | R0 IN    | 14 | XSHD OUT |
| 5  | GND      | 15 | +15V     |
| 6  | GND      | 16 | +15V     |
| 7  | VSUB IN  | 17 | +5V      |
| 8  | V2 IN    | 18 | +5V      |
| 9  | V1 IN    | 19 | B PA IN  |
| 10 | V3 IN    | 20 | GND      |
| 11 | V4 IN    |    |          |
| 12 | V4 OUT   |    |          |
| 13 | XSHD IN  |    |          |
| 14 | XSHD OUT |    |          |
| 15 | +15V     |    |          |
| 16 | +15V     |    |          |
| 17 | +5V      |    |          |
| 18 | +5V      |    |          |
| 19 | B PA IN  |    |          |
| 20 | GND      |    |          |

|    |                 |                  |
|----|-----------------|------------------|
| 1  | C53 IN          | AT, 4-15         |
| 2  | C52 IN          | AT, 4-17         |
| 3  | C54 IN          | AT, 4-18         |
| 4  | SERIAL DATA IN  | AT, 4-10         |
| 5  | SERIAL CLOCK IN | AT, 4-8          |
| 6  | CHARACTER IN    |                  |
| 7  |                 |                  |
| 8  | BARS CONT       |                  |
| 9  |                 |                  |
| 10 |                 |                  |
| 11 | C TEMP IN       | AT, 4-9          |
| 12 | CLPS IN         | SG, 5-16         |
| 13 | CHROMA OUT      | IF, 7-11         |
| 14 | L ALT IN        | SG, 5-6          |
| 15 | Y OUT           | IF, 7-9          |
| 16 | BF IN           | SG, 5-8          |
| 17 | OTL MIX OUT     | IF, 7-7          |
| 18 | SC IN IN        | SG, 5-10         |
| 19 | B PR OUT        | AT, 4-7 IF, 7-5  |
| 20 | SC IN OUT       | SG, 5-12         |
| 21 | G PR OUT        | AT, 4-5 IF, 7-3  |
| 22 | BLKS IN         | SG, 5-5 AT, 4-1  |
| 23 | R PR OUT        | AT, 4-3 IF, 7-1  |
| 24 | SYNC IN         | SG, 5-14 IF, 7-8 |

|    |                |          |
|----|----------------|----------|
| 1  | OTL IN         | IF, 6-23 |
| 2  | CLP4 IN        |          |
| 3  | G IE OUT       | IF, 6-21 |
| 4  | REF PULSE IN   | AT, 3-13 |
| 5  | R IE OUT       | IF, 6-19 |
| 6  | AGC/STEP IN    | AT, 3-11 |
| 7  | AGC CONT OUT   | AT, 3-12 |
| 8  | B BLK TRACK IN | AT, 3-9  |
| 9  | Y (IRIS) OUT   | AT, 3-10 |
| 10 | G BLK TRACK IN | AT, 3-7  |
| 11 | CLP IN         |          |
| 12 | R BLK TRACK IN | AT, 3-5  |
| 13 | CLP3 IN        |          |
| 14 | B PA IN        | TG, 2-2  |
| 15 | GND PAJ        | TG, 2-4  |
| 16 | G PA IN        | TG, 2-1  |
| 17 | -5V            |          |
| 18 | R PA IN        | TG, 2-3  |
| 19 | GND            |          |
| 20 | GND            |          |
| 21 | +5V            |          |
| 22 | +5V            |          |
| 23 | +5V            |          |
| 24 | +5V            |          |

|    |                |          |
|----|----------------|----------|
| 1  | OTL IN         | IF, 6-23 |
| 2  | CLP4 IN        |          |
| 3  | G IE OUT       | IF, 6-21 |
| 4  | REF PULSE IN   | AT, 3-13 |
| 5  | R IE OUT       | IF, 6-19 |
| 6  | AGC/STEP IN    | AT, 3-11 |
| 7  | AGC CONT OUT   | AT, 3-12 |
| 8  | B BLK TRACK IN | AT, 3-9  |
| 9  | Y (IRIS) OUT   | AT, 3-10 |
| 10 | G BLK TRACK IN | AT, 3-7  |
| 11 | CLP IN         |          |
| 12 | R BLK TRACK IN | AT, 3-5  |
| 13 | CLP3 IN        |          |
| 14 | B PA IN        | TG, 2-2  |
| 15 | GND PAJ        | TG, 2-4  |
| 16 | G PA IN        | TG, 2-1  |
| 17 | -5V            |          |
| 18 | R PA IN        | TG, 2-3  |
| 19 | GND            |          |
| 20 | GND            |          |
| 21 | +5V            |          |
| 22 | +5V            |          |
| 23 | +5V            |          |
| 24 | +5V            |          |

|    |                |          |
|----|----------------|----------|
| 1  | OTL IN         | IF, 6-23 |
| 2  | CLP4 IN        |          |
| 3  | G IE OUT       | IF, 6-21 |
| 4  | REF PULSE IN   | AT, 3-13 |
| 5  | R IE OUT       | IF, 6-19 |
| 6  | AGC/STEP IN    | AT, 3-11 |
| 7  | AGC CONT OUT   | AT, 3-12 |
| 8  | B BLK TRACK IN | AT, 3-9  |
| 9  | Y (IRIS) OUT   | AT, 3-10 |
| 10 | G BLK TRACK IN | AT, 3-7  |
| 11 | CLP IN         |          |
| 12 | R BLK TRACK IN | AT, 3-5  |
| 13 | CLP3 IN        |          |
| 14 | B PA IN        | TG, 2-2  |
| 15 | GND PAJ        | TG, 2-4  |
| 16 | G PA IN        | TG, 2-1  |
| 17 | -5V            |          |
| 18 | R PA IN        | TG, 2-3  |
| 19 | GND            |          |
| 20 | GND            |          |
| 21 | +5V            |          |
| 22 | +5V            |          |
| 23 | +5V            |          |
| 24 | +5V            |          |

|    |                |          |
|----|----------------|----------|
| 1  | OTL IN         | IF, 6-23 |
| 2  | CLP4 IN        |          |
| 3  | G IE OUT       | IF, 6-21 |
| 4  | REF PULSE IN   | AT, 3-13 |
| 5  | R IE OUT       | IF, 6-19 |
| 6  | AGC/STEP IN    | AT, 3-11 |
| 7  | AGC CONT OUT   | AT, 3-12 |
| 8  | B BLK TRACK IN | AT, 3-9  |
| 9  | Y (IRIS) OUT   | AT, 3-10 |
| 10 | G BLK TRACK IN | AT, 3-7  |
| 11 | CLP IN         |          |
| 12 | R BLK TRACK IN | AT, 3-5  |
| 13 | CLP3 IN        |          |
| 14 | B PA IN        | TG, 2-2  |
| 15 | GND PAJ        | TG, 2-4  |
| 16 | G PA IN        | TG, 2-1  |
| 17 | -5V            |          |
| 18 | R PA IN        | TG, 2-3  |
| 19 | GND            |          |
| 20 | GND            |          |
| 21 | +5V            |          |
| 22 | +5V            |          |
| 23 | +5V            |          |
| 24 | +5V            |          |

|    |                |          |
|----|----------------|----------|
| 1  | OTL IN         | IF, 6-23 |
| 2  | CLP4 IN        |          |
| 3  | G IE OUT       | IF, 6-21 |
| 4  | REF PULSE IN   | AT, 3-13 |
| 5  | R IE OUT       | IF, 6-19 |
| 6  | AGC/STEP IN    | AT, 3-11 |
| 7  | AGC CONT OUT   | AT, 3-12 |
| 8  | B BLK TRACK IN | AT, 3-9  |
| 9  | Y (IRIS) OUT   | AT, 3-10 |
| 10 | G BLK TRACK IN | AT, 3-7  |
| 11 | CLP IN         |          |
| 12 | R BLK TRACK IN | AT, 3-5  |
| 13 | CLP3 IN        |          |
| 14 | B PA IN        | TG, 2-2  |
| 15 | GND PAJ        | TG, 2-4  |
| 16 | G PA IN        | TG, 2-1  |
| 17 | -5V            |          |
| 18 | R PA IN        | TG, 2-3  |
| 19 | GND            |          |
| 20 | GND            |          |
| 21 | +5V            |          |
| 22 | +5V            |          |
| 23 | +5V            |          |
| 24 | +5V            |          |

|    |                |          |
|----|----------------|----------|
| 1  | OTL IN         | IF, 6-23 |
| 2  | CLP4 IN        |          |
| 3  | G IE OUT       | IF, 6-21 |
| 4  | REF PULSE IN   | AT, 3-13 |
| 5  | R IE OUT       | IF, 6-19 |
| 6  | AGC/STEP IN    | AT, 3-11 |
| 7  | AGC CONT OUT   | AT, 3-12 |
| 8  | B BLK TRACK IN | AT, 3-9  |
| 9  | Y (IRIS) OUT   | AT, 3-10 |
| 10 | G BLK TRACK IN | AT, 3-7  |
| 11 | CLP IN         |          |
| 12 | R BLK TRACK IN | AT, 3-5  |
| 13 | CLP3 IN        |          |
| 14 | B PA IN        | TG, 2-2  |
| 15 | GND PAJ        | TG, 2-4  |
| 16 | G PA IN        | TG, 2-1  |
| 17 | -5V            |          |
| 18 | R PA IN        | TG, 2-3  |
| 19 | GND            |          |
| 20 | GND            |          |
| 21 | +5V            |          |
| 22 | +5V            |          |
| 23 | +5V            |          |
| 24 | +5V            |          |

|    |                |          |
|----|----------------|----------|
| 1  | OTL IN         | IF, 6-23 |
| 2  | CLP4 IN        |          |
| 3  | G IE OUT       | IF, 6-21 |
| 4  | REF PULSE IN   | AT, 3-13 |
| 5  | R IE OUT       | IF, 6-19 |
| 6  | AGC/STEP IN    | AT, 3-11 |
| 7  | AGC CONT OUT   | AT, 3-12 |
| 8  | B BLK TRACK IN | AT, 3-9  |
| 9  | Y (IRIS) OUT   | AT, 3-10 |
| 10 | G BLK TRACK IN | AT, 3-7  |
| 11 | CLP IN         |          |
| 12 | R BLK TRACK IN | AT, 3-5  |
| 13 | CLP3 IN        |          |
| 14 | B PA IN        | TG, 2-2  |
| 15 | GND PAJ        | TG, 2-4  |
| 16 | G PA IN        | TG, 2-1  |
| 17 | -5V            |          |
| 18 | R PA IN        | TG, 2-3  |
| 19 | GND            |          |
| 20 | GND            |          |
| 21 | +5V            |          |
| 22 | +5V            |          |
| 23 | +5V            |          |
| 24 | +5V            |          |

|    |                |          |
|----|----------------|----------|
| 1  | OTL IN         | IF, 6-23 |
| 2  | CLP4 IN        |          |
| 3  | G IE OUT       | IF, 6-21 |
| 4  | REF PULSE IN   | AT, 3-13 |
| 5  | R IE OUT       | IF, 6-19 |
| 6  | AGC/STEP IN    | AT, 3-11 |
| 7  | AGC CONT OUT   | AT, 3-12 |
| 8  | B BLK TRACK IN | AT, 3-9  |
| 9  | Y (IRIS) OUT   | AT, 3-10 |
| 10 | G BLK TRACK IN | AT, 3-7  |
| 11 | CLP IN         |          |
| 12 | R BLK TRACK IN | AT, 3-5  |
| 13 | CLP3 IN        |          |
| 14 | B PA IN        | TG, 2-2  |
| 15 | GND PAJ        | TG, 2-4  |
| 16 | G PA IN        | TG, 2-1  |
| 17 | -5V            |          |
| 18 | R PA IN        | TG, 2-3  |
| 19 | GND            |          |
| 20 | GND            |          |
| 21 | +5V            |          |
| 22 | +5V            |          |
| 23 | +5V            |          |
| 24 | +5V            |          |

|    |                |          |
|----|----------------|----------|
| 1  | OTL IN         | IF, 6-23 |
| 2  | CLP4 IN        |          |
| 3  | G IE OUT       | IF, 6-21 |
| 4  | REF PULSE IN   | AT, 3-13 |
| 5  | R IE OUT       | IF, 6-19 |
| 6  | AGC/STEP IN    | AT, 3-11 |
| 7  | AGC CONT OUT   | AT, 3-12 |
| 8  | B BLK TRACK IN | AT, 3-9  |
| 9  | Y (IRIS) OUT   | AT, 3-10 |
| 10 | G BLK TRACK IN | AT, 3-7  |
| 11 | CLP IN         |          |
| 12 | R BLK TRACK IN | AT, 3-5  |
| 13 | CLP3 IN        |          |
| 14 | B PA IN        | TG, 2-2  |
| 15 | GND PAJ        | TG, 2-4  |
| 16 | G PA IN        | TG, 2-1  |
| 17 | -5V            |          |
| 18 | R PA IN        | TG, 2-3  |
| 19 | GND            |          |
| 20 | GND            |          |
| 21 | +5V            |          |
| 22 | +5V            |          |
| 23 | +5V            |          |
| 24 | +5V            |          |

|    |                |          |
|----|----------------|----------|
| 1  | OTL IN         | IF, 6-23 |
| 2  | CLP4 IN        |          |
| 3  | G IE OUT       | IF, 6-21 |
| 4  | REF PULSE IN   | AT, 3-13 |
| 5  | R IE OUT       | IF, 6-19 |
| 6  | AGC/STEP IN    | AT, 3-11 |
| 7  | AGC CONT OUT   | AT, 3-12 |
| 8  | B BLK TRACK IN | AT, 3-9  |
| 9  | Y (IRIS) OUT   | AT, 3-10 |
| 10 | G BLK TRACK IN | AT, 3-7  |
| 11 | CLP IN         |          |
| 12 | R BLK TRACK IN | AT, 3-5  |
| 13 | CLP3 IN        |          |
| 14 | B PA IN        | TG, 2-2  |
| 15 | GND PAJ        | TG, 2-4  |
| 16 | G PA IN        | TG, 2-1  |
| 17 | -5V            |          |
| 18 | R PA IN        | TG, 2-3  |
| 19 | GND            |          |
| 20 | GND            |          |
| 21 | +5V            |          |
| 22 | +5V            |          |
| 23 | +5V            |          |
| 24 | +5V            |          |

|    |        |    |
|----|--------|----|
| 20 |        |    |
| 21 |        | SC |
| 22 | G SYNC |    |
| 23 | H      |    |
| 24 | YC/VBS |    |

CH4

|    |        |       |
|----|--------|-------|
| 1  |        | BL    |
| 2  |        | V     |
| 3  |        | R     |
| 4  |        | CAB   |
| 5  |        | G     |
| 6  |        | SHUTT |
| 7  |        | B     |
| 8  | SERIAL |       |
| 9  | C TE   |       |
| 10 | SERIAL |       |
| 11 | CHARA  |       |
| 12 | BARS   |       |
| 13 | CS     |       |

FRAME FRAME

# FRAME WIRING PA-133/134 BOARD MB-380 BOARD CN-579 BOARD

MB-380

CN-579

CN-580

## FRAME WIRING PA-133/134 BOARD MB-380 BOARD CN-580 BOARD

XC-009 (J)  
XC-009P (J)

## FRAME WIRING PA-133/134 BOARD MB-380 BOARD CN-579 BOARD

EXC-930 (UC)  
EXC-930 (J)  
EXC-930P (EK)  
EXC-960MD (UC)

C-53

C-54

## SECTION D

### SPARE PARTS

#### PARTS INFORMATION

##### 1. Safety Related Component Warning

Components identified by shading marked with  $\Delta$  on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

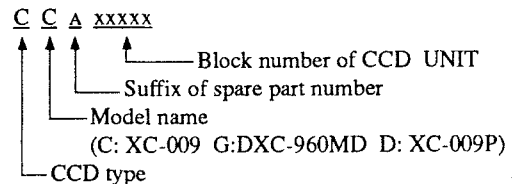
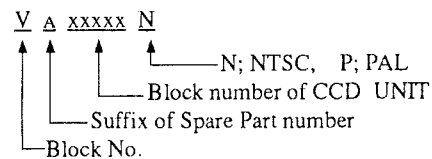
2. Replace Parts that are supplied from Sony Parts Center can sometimes have different shape and external appearance than what are actually used in equipment. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."
  - This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present."
  - Regarding engineering parts and diagrams changes in our engineering department, refer to Sony service bulletins and service manual supplements.
3. The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.
4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.
5. All capacitors are in micro farads unless otherwise specified.  
All inductors are in micro henried unless otherwise specified.  
All resistors are in ohms.

# CAMERA MODULE

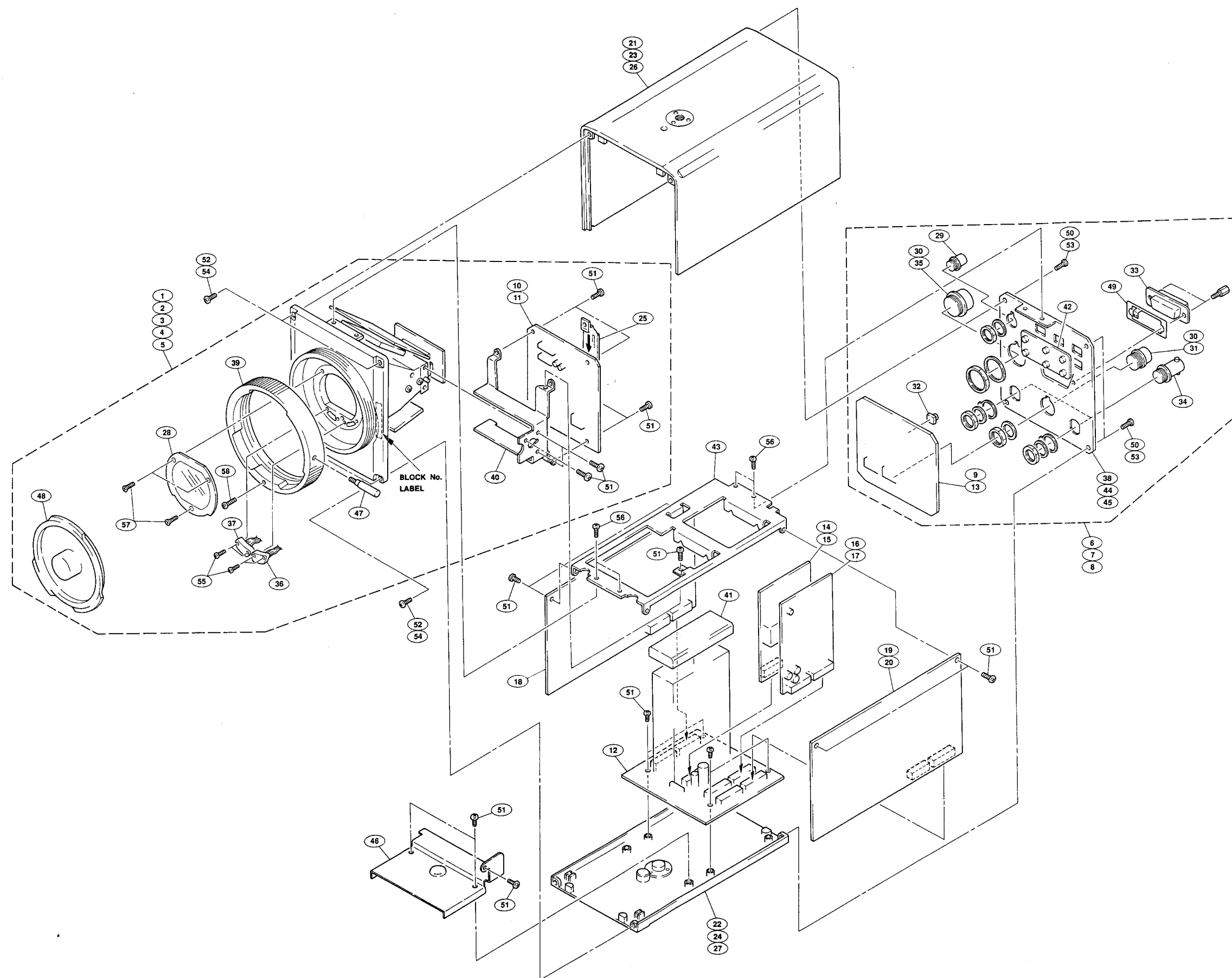
## EXPLODED VIEW

| No. | Part No.                      | SP Description                                                                            |
|-----|-------------------------------|-------------------------------------------------------------------------------------------|
| 1   | A-7575-196-A                  | s CCD UNIT-C930 (N) (DXC-930) *1                                                          |
| 2   | A-7575-197-A                  | s CCD UNIT-C930P (P) (DXC-930P) *2                                                        |
| 3   | A-7575-198-A                  | s CCD UNIT-009 (N) (XC-009) *3                                                            |
| 4   | A-7575-203-A                  | s CCD UNIT-C930 (N) (DXC-960MD) *4                                                        |
| 5   | A-7575-204-A                  | s CCD UNIT-009P (P) (XC-009P) *5                                                          |
| 6   | A-8262-277-A                  | o PANEL ASSY, REAR (XC-009/009P)                                                          |
| 7   | A-8262-282-A                  | o PANEL ASSY, REAR (DXC-930/930P)                                                         |
| 8   | A-8262-486-A                  | o PANEL ASSY, REAR (DXC-960MD)                                                            |
| 9   | A-8271-134-A                  | o MOUNTED CIRCUIT BOARD, CN-580<br>(XC-009/009P)                                          |
| 10  | A-8271-135-A                  | o MOUNTED CIRCUIT BOARD, TG-102<br>(DXC-930/960MD, XC-009)                                |
| 11  | A-8271-137-A                  | o MOUNTED CIRCUIT BOARD, TG-102P<br>(DXC-930P, XC-009P)                                   |
| 12  | A-8271-139-A                  | o MOUNTED CIRCUIT BOARD, MB-380                                                           |
| 13  | A-8271-140-A                  | o MOUNTED CIRCUIT BOARD, CN-579<br>(DXC-930/930P/960MD)                                   |
| 14  | A-8271-141-A                  | o MOUNTED CIRCUIT BOARD, SG-194<br>(DXC-930/960MD, XC-009)                                |
| 15  | A-8271-142-A                  | o MOUNTED CIRCUIT BOARD, SG-194P<br>(DXC-930P, XC-009P)                                   |
| 16  | A-8271-143-A                  | o MOUNTED CIRCUIT BOARD, IF-354<br>(DXC-930/960MD, XC-009)                                |
| 17  | A-8271-144-A                  | o MOUNTED CIRCUIT BOARD, IF-354P<br>(DXC-930P, XC-009P)                                   |
| 18  | A-8271-145-A                  | o MOUNTED CIRCUIT BOARD, AT-69                                                            |
| 19  | A-8271-146-A                  | o MOUNTED CIRCUIT BOARD, PR-158<br>(DXC-930/960MD, XC-009)                                |
| 20  | A-8271-147-A                  | o MOUNTED CIRCUIT BOARD, PR-158P<br>(DXC-930P, XC-009P)                                   |
| 21  | X-3166-543-3                  | o CASE ASSY (COMPO), UPPER (XC-009/009P)                                                  |
| 22  | X-3166-544-2                  | o CASE ASSY (COMPO), LOWER (XC-009/009P)                                                  |
| 23  | X-3166-546-3                  | o CASE ASSY (INST), UPPER (DXC-930/930P)                                                  |
| 24  | X-3166-547-2                  | o CASE ASSY (INST), LOWER (DXC-930/930P)                                                  |
| 25  | X-3166-548-1                  | o SPRING ASSY, TG RADIATION                                                               |
| 26  | X-3166-701-2                  | o CASE ASSY (MD), UPPER (DXC-960MD)                                                       |
| 27  | X-3166-702-1                  | o CASE ASSY (MD), LOWER (DXC-960MD)                                                       |
| 28  | 1-547-463-11                  | o FILTER UNIT, OPTICAL                                                                    |
| 29  | 1-562-222-21                  | s CONNECTOR, 6P FEMALE "LENS"                                                             |
| 30  | 1-562-381-00                  | s CONNECTOR, 12P MALE<br>"DC IN/REMOTE" (DXC-930/930P/960MD)<br>"DC IN/VBS" (XC-009/009P) |
| 31  | 1-563-929-11                  | s CONNECTOR, 4P FEMALE "CONTROL"<br>(XC-009/009P)                                         |
| 32  | 1-571-787-11                  | s SWITCH, TACTILE "MENU" "DISPLAY"                                                        |
| 33  | 1-580-090-11                  | s CONNECTOR, D-SUB 9P "RGB/SYNC"                                                          |
| 34  | 1-580-724-21                  | s CONNECTOR, BNC "VIDEO OUT" "GENLOCK"                                                    |
| 35  | 1-691-629-11                  | s CONNECTOR, 20P MALE "CCU"<br>(DXC-930/930P/960MD)                                       |
| 36  | 1-949-642-11                  | o HARNESS (ZOOM)                                                                          |
| 37  | 1-949-643-11                  | o HARNESS (IRIS)                                                                          |
| 38  | 3-174-661-01                  | o PANEL (COMPO), REAR (XC-009/009P)                                                       |
| 39  | 3-174-668-01                  | o RING, MOUNT                                                                             |
| 40  | 3-174-669-02                  | o BRACKET, TG                                                                             |
| 41  | 3-174-670-01                  | s RUBBER, HEAT ELECTRIC                                                                   |
| 42  | 3-174-672-01                  | o SHEET, REAR                                                                             |
| 43  | 3-174-673-02                  | o STAY                                                                                    |
| 44  | 3-174-674-01                  | o PANEL (INST), REAR (DXC-930/930P)                                                       |
| 45  | 3-174-674-11                  | o PANEL (INST), REAR (DXC-960MD)                                                          |
| 46  | 3-176-677-01                  | o PLATE, SHIELD<br>(DXC-930/930P/960MD, XC-009P)                                          |
| 47  | 3-678-629-00                  | s LEVER, MOUNT                                                                            |
| 48  | 3-699-144-01                  | s CAP, MOUNT                                                                              |
| 49  | 3-737-536-01                  | o LUG, GROUND, CONNECTOR                                                                  |
| 50  | 7-621-770-67                  | s SCREW +B 2.6X6                                                                          |
| 51  | 7-621-772-18                  | s SCREW +B 2X4                                                                            |
| 52  | 7-621-773-87                  | s SCREW +B 2.6X10                                                                         |
| 53  | 7-621-773-95                  | s SCREW +B 2.6X6 (XC-009/009P)                                                            |
| 54  | 7-621-775-50                  | s SCREW +B 2.6X10 (XC-009/009P)                                                           |
| 55  | 7-627-450-98                  | s SCREW, PRECISION +K 1.7X5 TYPE1                                                         |
| 56  | 7-627-452-27                  | s SCREW, +K 2X4                                                                           |
| 57  | 7-627-452-28                  | s SCREW, PRECISION +K 2X4                                                                 |
| 58  | 7-627-552-58                  | s SCREW, PRECISION +P 1.7X5                                                               |
| *1  | CCD BLOCK NUMBER; V A xxxxx N |                                                                                           |
| *2  | CCD BLOCK NUMBER; V A xxxxx P |                                                                                           |
| *3  | CCD BLOCK NUMBER; CCA xxxxx   |                                                                                           |
| *4  | CCD BLOCK NUMBER; CGA xxxxx   |                                                                                           |
| *5  | CCD BLOCK NUMBER; CDA xxxxx   |                                                                                           |

## How to read the CCD BLOCK NUMBER



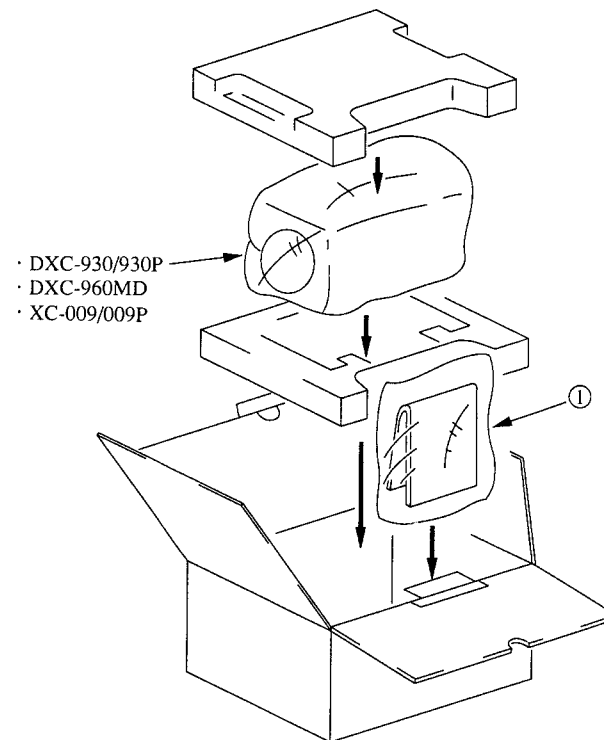




# PACKING

## SUPPLIED ACCESSORIES

| Ref. No.<br>or Q'ty | Part No.       | SP Description                       |
|---------------------|----------------|--------------------------------------|
| 1                   | 3-754-756-03 s | MANUAL, INSTRUCTION (XC-009/009P)    |
| △                   | 3-754-789-13 s | MANUAL, INSTRUCTION (DXC-930/930P)   |
| △                   | 3-755-152-12 s | MANUAL, INSTRUCTION (DXC-960MD)      |
|                     | 3-795-581-21 o | SAFEGUARD, IMPORTANT (DXC-930/960MD) |



## AT-69 BOARD

| Ref. No.<br>or Q'ty | Part No.       | SP Description                |
|---------------------|----------------|-------------------------------|
| 1pc                 | A-8271-145-A o | MOUNTED CIRCUIT BOARD, AT-69  |
| C1                  | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C2                  | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C3                  | 1-135-179-21 s | TANTALUM 2.2uF 20% 16V        |
| C4                  | 1-135-208-11 s | TANTALUM 1uF 20% 10V          |
| C5                  | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C6                  | 1-135-208-11 s | TANTALUM 1uF 20% 10V          |
| C7                  | 1-126-391-11 s | ELECT, CHIP 47uF 20% 6.3V     |
| C8                  | 1-126-396-11 s | ELECT, CHIP 47uF 20% 16V      |
| C9                  | 1-164-357-11 s | CERAMIC 1000PF 5% 50V         |
| C10                 | 1-135-208-11 s | TANTALUM 1uF 20% 10V          |
| C11                 | 1-135-179-21 s | TANTALUM 2.2uF 20% 16V        |
| C12                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C13                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C14                 | 1-164-357-11 s | CERAMIC 1000PF 5% 50V         |
| C15                 | 1-135-208-11 s | TANTALUM 1uF 20% 10V          |
| C16                 | 1-135-208-11 s | TANTALUM 1uF 20% 10V          |
| C17                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C18                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C19                 | 1-135-208-11 s | TANTALUM 1uF 20% 10V          |
| C20                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C21                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C22                 | 1-164-357-11 s | CERAMIC 1000PF 5% 50V         |
| C23                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C24                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C25                 | 1-135-208-11 s | TANTALUM 1uF 20% 10V          |
| C26                 | 1-164-357-11 s | CERAMIC 1000PF 5% 50V         |
| C27                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C28                 | 1-135-217-21 s | TANTALUM 15uF 20% 6.3         |
| C29                 | 1-135-190-21 s | TANTALUM 0.1uF 20% 20V        |
| C31                 | 1-126-391-11 s | ELECT, CHIP 47uF 20% 6.3V     |
| C32                 | 1-135-208-11 s | TANTALUM 1uF 20% 10V          |
| C33                 | 1-162-957-11 s | CERAMIC 220PF 5% 50V          |
| C34                 | 1-135-155-21 s | TANTAL CHIP 4.7uF 10% 16V     |
| C35                 | 1-135-166-21 s | TANTALUM, CHIP 47uF 10% 10V   |
| C36                 | 1-135-167-21 s | TANTALUM, CHIP 68uF 20% 6.3V  |
| C37                 | 1-135-208-11 s | TANTALUM 1uF 20% 10V          |
| C38                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C39                 | 1-164-360-11 s | CERAMIC 0.1uF 16V             |
| C40                 | 1-135-161-21 s | TANTALUM, CHIP 22uF 10% 10V   |
| C41                 | 1-135-161-21 s | TANTALUM, CHIP 22uF 10% 10V   |
| C42                 | 1-162-919-11 s | CERAMIC, CHIP 22PF 5% 50V     |
| C43                 | 1-162-921-11 s | CERAMIC, CHIP 33PF 5% 50V     |
| C44                 | 1-162-921-11 s | CERAMIC, CHIP 33PF 5% 50V     |
| C45                 | 1-162-919-11 s | CERAMIC, CHIP 22PF 5% 50V     |
| C46                 | 1-135-208-11 s | TANTALUM 1uF 20% 10V          |
| C47                 | 1-135-162-21 s | TANTALUM, CHIP 33uF 10% 6.3V  |
| C48                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| C49                 | 1-164-357-11 s | CERAMIC 1000PF 5% 50V         |
| C50                 | 1-162-927-11 s | CERAMIC, CHIP 100PF 5% 50V    |
| C51                 | 1-162-927-11 s | CERAMIC, CHIP 100PF 5% 50V    |
| C52                 | 1-135-164-21 s | TANTALUM, CHIP 22uF 20% 10V   |
| C53                 | 1-135-179-21 s | TANTALUM 2.2uF 20% 16V        |
| C54                 | 1-135-210-11 s | TANTALUM 4.7uF 20% 10V        |
| CN1                 | 1-569-607-11 s | CONNECTOR, BOARD TO BOARD 24P |
| CN2                 | 1-569-607-11 s | CONNECTOR, BOARD TO BOARD 24P |
| D1                  | 8-719-017-08 s | DIODE 02DZ5.6-TPHR3           |

## (AT-69 BOARD)

| Ref. No.<br>or Q'ty | Part No.       | SP Description           |
|---------------------|----------------|--------------------------|
| D2                  | 8-719-800-76 s | DIODE 1SS226             |
| D3                  | 8-719-800-76 s | DIODE 1SS226             |
| D4                  | 8-719-123-82 s | DIODE 1SS303             |
| D5                  | 8-719-123-82 s | DIODE 1SS303             |
| IC1                 | 8-759-906-54 s | IC TL064CNS              |
| IC2                 | 8-759-300-71 s | IC HD14053BFP            |
| IC3                 | 8-759-242-64 s | IC TC4W53F               |
| IC5                 | 8-759-009-06 s | IC MC14052BF             |
| IC7                 | 8-759-030-16 s | IC MC34182M              |
| IC8                 | 8-759-906-54 s | IC TL064CNS              |
| IC9                 | 8-759-987-41 s | IC SN74HC4066NS          |
| IC10                | 8-759-011-65 s | IC MC74HC4053F           |
| IC11                | 8-759-908-92 s | IC TL084CNS              |
| IC12                | 8-759-635-27 s | IC M62352GP-E1           |
| IC13                | 8-759-009-06 s | IC MC14052BF             |
| IC14                | 8-759-009-05 s | IC MC14051BF             |
| IC15                | 8-759-300-71 s | IC HD14053BFP            |
| IC16                | 8-759-300-71 s | IC HD14053BFP            |
| IC17                | 8-759-209-57 s | IC TC4S69F               |
| IC18                | 8-759-209-97 s | IC TC4S81F               |
| IC19                | 8-759-209-97 s | IC TC4S81F               |
| IC20                | 8-759-078-51 s | IC HD63B05Y0E64F         |
| IC21                | 8-759-052-64 s | IC M6M80011AFP           |
| IC22                | 8-759-112-72 s | IC UPD6142G-101          |
| IC23                | 8-759-635-27 s | IC M62352GP-E1           |
| IC24                | 8-759-030-16 s | IC MC34182M              |
| IC25                | 8-759-946-03 s | IC S-8054ALR-LN-S        |
| L1                  | 1-412-030-11 s | INDUCTOR CHIP 22uH       |
| L3                  | 1-412-030-11 s | INDUCTOR CHIP 22uH       |
| L4                  | 1-412-030-11 s | INDUCTOR CHIP 22uH       |
| L5                  | 1-408-786-21 s | INDUCTOR CHIP 56uH       |
| Q1                  | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q2                  | 8-729-427-83 s | TRANSISTOR XP6501        |
| Q3                  | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q4                  | 8-729-427-80 s | TRANSISTOR XP6401        |
| Q5                  | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q6                  | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q7                  | 8-729-427-83 s | TRANSISTOR XP6501        |
| Q8                  | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q9                  | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q10                 | 8-729-427-83 s | TRANSISTOR XP6501        |
| Q11                 | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q12                 | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q13                 | 8-729-427-83 s | TRANSISTOR XP6501        |
| Q14                 | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q15                 | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q16                 | 8-729-117-16 s | TRANSISTOR 2SA1611-M6    |
| Q17                 | 8-729-117-16 s | TRANSISTOR 2SA1611-M6    |
| Q18                 | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q19                 | 8-729-926-19 s | TRANSISTOR 2SC4103-Q     |
| Q20                 | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q21                 | 8-729-427-83 s | TRANSISTOR XP6501        |
| Q22                 | 8-729-117-16 s | TRANSISTOR 2SA1611-M6    |
| Q23                 | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| Q24                 | 8-729-117-16 s | TRANSISTOR 2SA1611-M6    |
| Q25                 | 8-729-117-32 s | TRANSISTOR 2SC4177       |
| R1                  | 1-216-836-11 s | METAL, CHIP 18K 5% 1/16W |
| R2                  | 1-216-833-11 s | METAL, CHIP 10K 5% 1/16W |

## (AT-69 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R3                  | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R4                  | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R5                  | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R6                  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R7                  | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W   |
| R8                  | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R9                  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R10                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R11                 | 1-216-819-11 | s METAL, CHIP 680 5% 1/16W  |
| R12                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R13                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R15                 | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R16                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R17                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R18                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W   |
| R19                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R20                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R21                 | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R22                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R23                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R24                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R25                 | 1-218-714-11 | s METAL 8.2K 0.50% 1/16W    |
| R26                 | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R27                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R29                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R30                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W     |
| R32                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R33                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R34                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W  |
| R35                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W  |
| R37                 | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R38                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R39                 | 1-218-714-11 | s METAL 8.2K 0.50% 1/16W    |
| R40                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R41                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R42                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R44                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R45                 | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R46                 | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R48                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W     |
| R49                 | 1-218-724-11 | s METAL 22K 0.50% 1/16W     |
| R50                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R51                 | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R52                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R53                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W  |
| R54                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R55                 | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R57                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R58                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R59                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R60                 | 1-218-724-11 | s METAL 22K 0.50% 1/16W     |
| R61                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R62                 | 1-218-714-11 | s METAL 8.2K 0.50% 1/16W    |
| R63                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R65                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R66                 | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R67                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R68                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R69                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W     |

## (AT-69 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                |
|---------------------|--------------|-------------------------------|
| R70                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R71                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W    |
| R72                 | 1-216-801-11 | s METAL 22 0.50% 1/16W        |
| R74                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W   |
| R75                 | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W    |
| R76                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W    |
| R77                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R78                 | 1-218-725-11 | s METAL 24K 0.50% 1/16W       |
| R79                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R80                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R82                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R84                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W   |
| R85                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W   |
| R86                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W    |
| R87                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R88                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W   |
| R89                 | 1-218-883-11 | s METAL, CHIP 33K 0.50% 1/16W |
| R90                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R92                 | 1-218-740-11 | s METAL 100K 0.50% 1/16W      |
| R93                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W    |
| R94                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W    |
| R95                 | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W   |
| R96                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R97                 | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W   |
| R98                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R99                 | 1-216-853-11 | s METAL, CHIP 470K 5% 1/16W   |
| R100                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R101                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W   |
| R102                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W    |
| R103                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R104                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W   |
| R105                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W   |
| R106                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R107                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W   |
| R108                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W    |
| R109                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W    |
| R110                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R114                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W    |
| R115                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W   |
| R116                | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W    |
| R117                | 1-216-842-11 | s METAL, CHIP 56K 5% 1/16W    |
| R118                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W    |
| R119                | 1-216-838-11 | s METAL, CHIP 27K 5% 1/16W    |
| R120                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R121                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R122                | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W    |
| R123                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W    |
| R124                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W    |
| R125                | 1-216-842-11 | s METAL, CHIP 56K 5% 1/16W    |
| R126                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R127                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R128                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R129                | 1-216-838-11 | s METAL, CHIP 27K 5% 1/16W    |
| R130                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W    |
| R131                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W    |
| R132                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W    |
| R133                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W    |
| R134                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W    |
| R135                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W    |

## (AT-69 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description               |
|---------------------|--------------|------------------------------|
| R136                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W   |
| R137                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W   |
| R138                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W  |
| R139                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W  |
| R140                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W  |
| R141                | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W  |
| R142                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W   |
| R143                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W  |
| R145                | 1-216-864-11 | s METAL, CHIP 0-OHM          |
| R146                | 1-216-864-11 | s METAL, CHIP 0-OHM          |
| R147                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W  |
| RBI                 | 1-231-387-00 | s COMPOSITION CIRCUIT BLOCK  |
| SW1                 | 1-571-120-11 | s SWITCH, SLIDE              |
| SW2                 | 1-571-249-11 | s SWITCH, SLIDE              |
| X1                  | 1-567-192-11 | s RESONATOR, CERAMIC 4.00MHZ |

## CN-579 BOARD (For DXC-930/930P/960MD)

| Ref. No.<br>or Q'ty | Part No.       | SP Description                                          |
|---------------------|----------------|---------------------------------------------------------|
| 1pc                 | A-8271-140-A   | o MOUNTED CIRCUIT BOARD, CN-579<br>(DXC-930/930P/960MD) |
| C1                  | 1-135-076-21   | s TANTALUM, CHIP 1uF 10% 35V                            |
| C2                  | 1-135-162-21   | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C3                  | 1-162-915-11   | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C4                  | 1-162-915-11   | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C5                  | 1-135-162-21   | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C6                  | 1-162-915-11   | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C7                  | 1-162-915-11   | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C8                  | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V                        |
| C9                  | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V                        |
| C10                 | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V                        |
| C11                 | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V                        |
| C12                 | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V                        |
| C13                 | 1-162-927-11   | s CERAMIC, CHIP 100PF 5% 50V                            |
| C14                 | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V                        |
| C15                 | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V                        |
| C16                 | 1-162-919-11   | s CERAMIC, CHIP 22PF 5% 50V                             |
| C17                 | 1-162-919-11   | s CERAMIC, CHIP 22PF 5% 50V                             |
| C18                 | 1-162-919-11   | s CERAMIC, CHIP 22PF 5% 50V                             |
| C19                 | 1-162-919-11   | s CERAMIC, CHIP 22PF 5% 50V                             |
| C20                 | 1-162-919-11   | s CERAMIC, CHIP 22PF 5% 50V                             |
| C21                 | 1-162-919-11   | s CERAMIC, CHIP 22PF 5% 50V                             |
| C22                 | 1-135-159-21   | s TANTALUM, CHIP 10uF 10% 20V                           |
| CN1                 | 1-566-531-11   | s CONNECTOR, FPC (ZIF) 15P                              |
| CN2                 | 1-566-531-11   | s CONNECTOR, FPC (ZIF) 15P                              |
| D1                  | 8-719-017-08   | s DIODE 02DZ5.6-TPHR3                                   |
| D2                  | 8-719-510-30   | s DIODE D2FL20                                          |
| F1                  | △ 1-576-212-21 | s FUSE, CHIP                                            |
| F2                  | △ 1-576-212-21 | s FUSE, CHIP                                            |
| IC1                 | 8-759-300-71   | s IC HD14053BFP                                         |
| L1                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                                   |
| L2                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                                   |
| L3                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                                   |
| L4                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                                   |
| L5                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                                   |
| L6                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                                   |
| L7                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                                   |
| L8                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                                   |
| L19                 | 1-408-781-00   | s INDUCTOR CHIP 22uH                                    |
| Q1                  | 8-729-427-83   | s TRANSISTOR XP6501                                     |
| Q2                  | 8-729-427-74   | s TRANSISTOR XP4601                                     |
| Q3                  | 8-729-427-83   | s TRANSISTOR XP6501                                     |
| Q4                  | 8-729-427-74   | s TRANSISTOR XP4601                                     |
| Q5                  | 8-729-117-16   | s TRANSISTOR 2SA1611-M6                                 |
| Q6                  | 8-729-117-32   | s TRANSISTOR 2SC4177                                    |
| Q7                  | 8-729-117-16   | s TRANSISTOR 2SA1611-M6                                 |
| Q8                  | 8-729-117-16   | s TRANSISTOR 2SA1611-M6                                 |
| Q9                  | 8-729-117-32   | s TRANSISTOR 2SC4177                                    |
| Q10                 | 8-729-117-16   | s TRANSISTOR 2SA1611-M6                                 |
| R1                  | 1-216-809-11   | s METAL, CHIP 100 5% 1/16W                              |
| R2                  | 1-216-840-11   | s METAL, CHIP 39K 5% 1/16W                              |
| R3                  | 1-216-833-11   | s METAL, CHIP 10K 5% 1/16W                              |
| R4                  | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                               |
| R5                  | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                               |

## (CN-579 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                |
|---------------------|--------------|-------------------------------|
| R6                  | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R7                  | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R8                  | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R9                  | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R10                 | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R11                 | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R12                 | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R13                 | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R14                 | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R15                 | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R16                 | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R17                 | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R18                 | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W     |
| R19                 | 1-218-883-11 | s METAL, CHIP 33K 0.50% 1/16W |
| R20                 | 1-218-723-11 | s METAL 20K 0.50% 1/16W       |
| R21                 | 1-218-701-11 | s METAL 2.4K 0.50% 1/16W      |
| R22                 | 1-218-698-11 | s METAL 1.8K 0.50% 1/16W      |
| R23                 | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W   |
| R24                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R25                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W       |
| R26                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W    |
| R28                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R31                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W    |
| R32                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R33                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R34                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R35                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R36                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W   |
| R37                 | 1-218-271-11 | s METAL 2K 0.50% 1/16W        |
| R38                 | 1-218-286-11 | s METAL, CHIP 91 0.50% 1/16W  |
| R39                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W   |
| R40                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W     |
| R41                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W     |
| R42                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W     |
| R43                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W     |
| R44                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R45                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R47                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R48                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R49                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R50                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R51                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R52                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W   |
| R53                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W     |
| R54                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W     |
| R55                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W     |
| R56                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W     |
| R60                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W    |
| R61                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W    |
| SW1                 | 1-571-787-11 | s SWITCH, TACTILE             |
| SW2                 | 1-571-787-11 | s SWITCH, TACTILE             |
| SW3                 | 1-571-787-11 | s SWITCH, TACTILE             |
| SW4                 | 1-571-787-11 | s SWITCH, TACTILE             |
| SW5                 | 1-571-787-11 | s SWITCH, TACTILE             |
| SW6                 | 1-571-787-11 | s SWITCH, TACTILE             |
| SW7                 | 1-571-120-11 | s SWITCH, SLIDE               |

## CN-580 BOARD (For XC-009/009P)

| Ref. No.<br>or Q'ty | Part No.       | SP Description                                |
|---------------------|----------------|-----------------------------------------------|
| 1pc                 | A-8271-134-A   | o MOUNTED CIRCUIT BOARD, CN-580 (XC-009/009P) |
| C1                  | 1-135-162-21   | s TANTALUM, CHIP 33uF 10% 6.3V                |
| C2                  | 1-162-915-11   | s CERAMIC, CHIP 10PF 5PF 50V                  |
| C3                  | 1-162-915-11   | s CERAMIC, CHIP 10PF 5PF 50V                  |
| C4                  | 1-135-162-21   | s TANTALUM, CHIP 33uF 10% 6.3V                |
| C5                  | 1-162-915-11   | s CERAMIC, CHIP 10PF 5PF 50V                  |
| C6                  | 1-162-915-11   | s CERAMIC, CHIP 10PF 5PF 50V                  |
| C8                  | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V              |
| C9                  | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V              |
| C10                 | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V              |
| C11                 | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V              |
| C12                 | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V              |
| C13                 | 1-162-927-11   | s CERAMIC, CHIP 100PF 5% 50V                  |
| C14                 | 1-162-966-11   | s CERAMIC, CHIP 0.0022uF 10% 50V              |
| C15                 | 1-162-919-11   | s CERAMIC, CHIP 22PF 5% 50V                   |
| C16                 | 1-162-919-11   | s CERAMIC, CHIP 22PF 5% 50V                   |
| CN1                 | 1-566-531-11   | s CONNECTOR, FPC (ZIF) 15P                    |
| CN2                 | 1-566-531-11   | s CONNECTOR, FPC (ZIF) 15P                    |
| D1                  | 8-719-510-30   | s DIODE D2FL20                                |
| F1                  | △ 1-576-212-21 | s FUSE, CHIP                                  |
| IC1                 | 8-759-300-71   | s IC HD14053BFP                               |
| L1                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                         |
| L2                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                         |
| L3                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                         |
| L4                  | 1-410-997-31   | s INDUCTOR CHIP 2.2uH                         |
| L12                 | 1-408-781-00   | s INDUCTOR CHIP 22uH                          |
| Q1                  | 8-729-427-83   | s TRANSISTOR XP6501                           |
| Q2                  | 8-729-117-16   | s TRANSISTOR 2SA1611-M6                       |
| Q3                  | 8-729-427-74   | s TRANSISTOR XP4601                           |
| Q4                  | 8-729-117-32   | s TRANSISTOR 2SC4177                          |
| Q5                  | 8-729-117-16   | s TRANSISTOR 2SA1611-M6                       |
| Q6                  | 8-729-427-83   | s TRANSISTOR XP6501                           |
| Q7                  | 8-729-117-16   | s TRANSISTOR 2SA1611-M6                       |
| Q8                  | 8-729-427-74   | s TRANSISTOR XP4601                           |
| Q9                  | 8-729-117-32   | s TRANSISTOR 2SC4177                          |
| Q10                 | 8-729-117-16   | s TRANSISTOR 2SA1611-M6                       |
| R2                  | 1-216-837-11   | s METAL, CHIP 22K 5% 1/16W                    |
| R3                  | 1-216-837-11   | s METAL, CHIP 22K 5% 1/16W                    |
| R4                  | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                     |
| R10                 | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                     |
| R11                 | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                     |
| R12                 | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                     |
| R13                 | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                     |
| R14                 | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                     |
| R15                 | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                     |
| R16                 | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                     |
| R17                 | 1-218-285-11   | s METAL, CHIP 75 5% 1/16W                     |
| R19                 | 1-218-883-11   | s METAL, CHIP 33K 0.50% 1/16W                 |
| R20                 | 1-218-723-11   | s METAL 20K 0.50% 1/16W                       |
| R21                 | 1-218-701-11   | s METAL 2.4K 0.50% 1/16W                      |
| R22                 | 1-218-698-11   | s METAL 1.8K 0.50% 1/16W                      |
| R23                 | 1-216-823-11   | s METAL, CHIP 1.5K 5% 1/16W                   |
| R24                 | 1-216-821-11   | s METAL, CHIP 1K 5% 1/16W                     |
| R25                 | 1-218-716-11   | s METAL 10K 0.50% 1/16W                       |
| R26                 | 1-218-700-11   | s METAL 2.2K 0.50% 1/16W                      |

## (CN-580 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description               |
|---------------------|--------------|------------------------------|
| R27                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W     |
| R28                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W     |
| R29                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W    |
| R30                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W  |
| R31                 | 1-218-286-11 | s METAL, CHIP 91 0.50% 1/16W |
| R32                 | 1-218-271-11 | s METAL 2K 0.50% 1/16W       |
| R33                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W  |
| R34                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W    |
| R35                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W    |
| R36                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W    |
| R37                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W    |
| R38                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W     |
| R39                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W     |
| R40                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W     |
| R41                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W    |
| R42                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W  |
| R43                 | 1-216-864-11 | s METAL, CHIP 0-OHM          |
| R44                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W     |
| R45                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W  |
| R46                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W    |
| R47                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W    |
| R48                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W    |
| R49                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W    |
| S1                  | 1-571-787-11 | s SWITCH, TACTILE            |
| S2                  | 1-571-787-11 | s SWITCH, TACTILE            |
| S3                  | 1-571-787-11 | s SWITCH, TACTILE            |
| S4                  | 1-571-787-11 | s SWITCH, TACTILE            |
| S5                  | 1-571-787-11 | s SWITCH, TACTILE            |
| S6                  | 1-571-787-11 | s SWITCH, TACTILE            |
| S7                  | 1-571-120-11 | s SWITCH, SLIDE              |

## IF-354 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                                            |
|---------------------|--------------|-----------------------------------------------------------|
| 1pc                 | A-8271-143-A | o MOUNTED CIRCUIT BOARD, IF-354<br>(DXC-930/960MD,XC-009) |
| C1                  | 1-162-964-11 | s CERAMIC 0.001uF 10% 50V                                 |
| C2                  | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C3                  | 1-135-076-21 | s TANTALUM, CHIP 1uF 10% 35V                              |
| C4                  | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                            |
| C5                  | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C6                  | 1-162-905-11 | s CERAMIC 1PF 0.25PF 50V                                  |
| C7                  | 1-162-928-11 | s CERAMIC 120PF 5% 50V                                    |
| C8                  | 1-162-928-11 | s CERAMIC 120PF 5% 50V                                    |
| C9                  | 1-126-392-11 | s ELECT, CHIP 100uF 20% 6.3V                              |
| C10                 | 1-126-396-11 | s ELECT, CHIP 47uF 20% 16V                                |
| C11                 | 1-162-908-11 | s CERAMIC 3PF 0.25PF 50V                                  |
| C12                 | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V                               |
| C13                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                             |
| C15                 | 1-135-161-21 | s TANTALUM, CHIP 22uF 10% 10V                             |
| C16                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C17                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                             |
| C18                 | 1-162-974-11 | s CERAMIC 0.01uF 50V                                      |
| C19                 | 1-162-974-11 | s CERAMIC 0.01uF 50V                                      |
| C20                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                             |
| C21                 | 1-126-391-11 | s ELECT, CHIP 47uF 20% 6.3V                               |
| C22                 | 1-126-396-11 | s ELECT, CHIP 47uF 20% 16V                                |
| C23                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                               |
| C24                 | 1-162-907-11 | s CERAMIC, CHIP 2PF 50V                                   |
| C25                 | 1-162-917-11 | s CERAMIC, CHIP 15PF 5% 50V                               |
| C26                 | 1-135-216-11 | s TANTALUM 10uF 20% 10V                                   |
| C27                 | 1-162-908-11 | s CERAMIC 3PF 0.25PF 50V                                  |
| C28                 | 1-162-911-11 | s CERAMIC, CHIP 6PF 50V                                   |
| C29                 | 1-162-911-11 | s CERAMIC, CHIP 6PF 50V                                   |
| C30                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                            |
| C31                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                              |
| C32                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                              |
| C33                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                              |
| C34                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                              |
| C35                 | 1-135-211-11 | s TANTALUM 6.8uF 20% 6.3                                  |
| C36                 | 1-135-211-11 | s TANTALUM 6.8uF 20% 6.3                                  |
| C37                 | 1-135-211-11 | s TANTALUM 6.8uF 20% 6.3                                  |
| C38                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                            |
| C39                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                            |
| C40                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                            |
| C41                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                              |
| C42                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                              |
| C43                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                            |
| C44                 | 1-135-181-21 | s TANTALUM, CHIP 4.7uF 10% 6.3V                           |
| C45                 | 1-162-911-11 | s CERAMIC, CHIP 6PF 50V                                   |
| C46                 | 1-162-913-11 | s CERAMIC 8PF 0.5PF 50V                                   |
| C47                 | 1-162-909-11 | s CERAMIC 4PF 0.25PF 50V                                  |
| C48                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                            |
| C49                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                              |
| C50                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                            |
| C51                 | 1-162-911-11 | s CERAMIC, CHIP 6PF 50V                                   |
| C52                 | 1-162-918-11 | s CERAMIC, CHIP 18PF 5% 50V                               |
| C53                 | 1-135-217-21 | s TANTALUM 15uF 20% 6.3                                   |
| C54                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                              |
| C55                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                            |
| C56                 | 1-162-916-11 | s CERAMIC, CHIP 12PF 5% 50V                               |
| C57                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                            |

## (IF-354 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| C58                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C59                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V  |
| C60                 | 1-162-910-11 | s CERAMIC 5PF 0.25PF 50V        |
| C61                 | 1-162-916-11 | s CERAMIC, CHIP 12PF 5% 50V     |
| C62                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C63                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C64                 | 1-162-911-11 | s CERAMIC, CHIP 6PF 50V         |
| CN1                 | 1-569-607-11 | s CONNECTOR, BOARD TO BOARD 24P |
| CN2                 | 1-569-607-11 | s CONNECTOR, BOARD TO BOARD 24P |
| IC1                 | 8-752-332-69 | s IC CXL5504M                   |
| IC2                 | 8-759-242-64 | s IC TC4W53F                    |
| IC3                 | 8-759-209-97 | s IC TC4S81F                    |
| IC4                 | 8-759-209-57 | s IC TC4S69F                    |
| L1                  | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L2                  | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L3                  | 1-408-793-21 | s INDUCTOR CHIP 220uH           |
| L4                  | 1-410-719-31 | s INDUCTOR CHIP 150uH           |
| L5                  | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L6                  | 1-408-797-11 | s INDUCTOR CHIP 470uH           |
| L7                  | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L8                  | 1-408-793-21 | s INDUCTOR CHIP 220uH           |
| L9                  | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L10                 | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L11                 | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L12                 | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L13                 | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| Q1                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q2                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q3                  | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q4                  | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q5                  | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q6                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q7                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q8                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q9                  | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q10                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q11                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| Q12                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q13                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| Q14                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| Q15                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q16                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| Q17                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q18                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q19                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q20                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q21                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| Q22                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q23                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q24                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q25                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q26                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q27                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q28                 | 8-729-427-74 | s TRANSISTOR XP4601             |
| Q29                 | 8-729-427-74 | s TRANSISTOR XP4601             |
| Q30                 | 8-729-427-74 | s TRANSISTOR XP4601             |
| Q31                 | 8-729-427-83 | s TRANSISTOR XP6501             |

## (IF-354 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| Q32                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q33                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q34                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q35                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q36                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q37                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q38                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q39                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q40                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q41                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q42                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q43                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q44                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q45                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q46                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q47                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q48                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q49                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q50                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q51                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q52                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q53                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q54                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q55                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q56                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q57                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q58                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q59                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q60                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q61                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q62                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q63                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q64                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| R1                  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R2                  | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R3                  | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R4                  | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R5                  | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W  |
| R6                  | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R7                  | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R8                  | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R9                  | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R10                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R11                 | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R12                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R13                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R14                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R15                 | 1-216-839-11 | s METAL, CHIP 33K 5% 1/16W  |
| R16                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R17                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W   |
| R18                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R19                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R20                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R21                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R22                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R23                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R24                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R25                 | 1-216-818-11 | s METAL, CHIP 560 5% 1/16W  |

## (IF-354 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| R26                 | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R27                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R28                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R29                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R30                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R31                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R32                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R33                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R34                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R35                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W     |
| R36                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R37                 | 1-216-822-11 | s METAL, CHIP 1.2K 5% 1/16W    |
| R38                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W    |
| R39                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R40                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R41                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R42                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R43                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R44                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R45                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R46                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R47                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R48                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R49                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R50                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R51                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R52                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R53                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R54                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R55                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R56                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R57                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R58                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R59                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R60                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R61                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R62                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R63                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R64                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W     |
| R65                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R66                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R67                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W     |
| R68                 | 1-218-704-11 | s METAL, CHIP 3.3K 0.50% 1/16W |
| R69                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W     |
| R70                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R71                 | 1-218-704-11 | s METAL, CHIP 3.3K 0.50% 1/16W |
| R72                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R73                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W     |
| R74                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W     |
| R75                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W     |
| R76                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R77                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R78                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R79                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R80                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R81                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W      |
| R82                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R83                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R84                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |

## (IF-354 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R85                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R86                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R87                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R88                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R89                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R90                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R91                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R92                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R93                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R94                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R95                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R96                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R97                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R98                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R99                 | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R100                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R101                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R102                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R103                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R104                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R105                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R106                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R107                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R108                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R109                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R110                | 1-216-789-11 | s METAL 2.2 5% 1/16W        |
| R111                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R112                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R113                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R114                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R115                | 1-218-688-11 | s METAL 680 0.50% 1/16W     |
| R116                | 1-216-789-11 | s METAL 2.2 5% 1/16W        |
| R117                | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R118                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R119                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R120                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R121                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R122                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R123                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R124                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R125                | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R126                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R127                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R128                | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R129                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R130                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R131                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R132                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R133                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R134                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R135                | 1-216-839-11 | s METAL, CHIP 33K 5% 1/16W  |
| R136                | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R137                | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R138                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R139                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R140                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R141                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R142                | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R143                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |



## (IF-354 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| R144                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R145                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R146                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R147                | 1-218-708-11 | s METAL, CHIP 4.7K 0.50% 1/16W |
| R148                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R149                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R150                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R151                | 1-216-864-11 | s METAL, CHIP 0-OHM            |
| R152                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R153                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R154                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R155                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R156                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R157                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R158                | 1-218-739-11 | s METAL, CHIP 91K 0.50% 1/16W  |
| R159                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| RV1                 | 1-238-089-11 | s RES, ADJ CERMET 4.7K         |
| RV2                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K        |
| RV3                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K        |
| RV4                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K        |
| RV5                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K        |
| RV6                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K        |
| RV7                 | 1-238-090-11 | s RES, ADJ CERMET 10K          |

## IF-354P BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                                          |
|---------------------|--------------|---------------------------------------------------------|
| 1pc                 | A-8271-144-A | o MOUNTED CIRCUIT BOARD, IF-354P<br>(DXC-930P, XC-009P) |
| C1                  | 1-162-964-11 | s CERAMIC 0.001uF 10% 50V                               |
| C2                  | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C3                  | 1-135-076-21 | s TANTALUM, CHIP 1uF 10% 35V                            |
| C4                  | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C5                  | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C6                  | 1-162-905-11 | s CERAMIC 1PF 0.25PF 50V                                |
| C7                  | 1-162-924-11 | s CERAMIC 56PF 5% 50V                                   |
| C8                  | 1-162-924-11 | s CERAMIC 56PF 5% 50V                                   |
| C9                  | 1-126-392-11 | s ELECT, CHIP 100uF 20% 6.3V                            |
| C10                 | 1-126-396-11 | s ELECT, CHIP 47uF 20% 16V                              |
| C11                 | 1-162-909-11 | s CERAMIC 4PF 0.25PF 50V                                |
| C12                 | 1-162-922-11 | s CERAMIC, CHIP 39PF 5% 50V                             |
| C13                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                           |
| C15                 | 1-135-161-21 | s TANTALUM, CHIP 22uF 10% 10V                           |
| C16                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C17                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                           |
| C18                 | 1-162-974-11 | s CERAMIC 0.01uF 50V                                    |
| C19                 | 1-162-974-11 | s CERAMIC 0.01uF 50V                                    |
| C20                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                           |
| C21                 | 1-126-391-11 | s ELECT, CHIP 47uF 20% 6.3V                             |
| C22                 | 1-126-396-11 | s ELECT, CHIP 47uF 20% 16V                              |
| C23                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                             |
| C24                 | 1-162-907-11 | s CERAMIC, CHIP 2PF 50V                                 |
| C25                 | 1-162-917-11 | s CERAMIC, CHIP 15PF 5% 50V                             |
| C26                 | 1-135-216-11 | s TANTALUM 10uF 20% 10V                                 |
| C27                 | 1-162-908-11 | s CERAMIC 3PF 0.25PF 50V                                |
| C28                 | 1-162-911-11 | s CERAMIC, CHIP 6PF 50V                                 |
| C29                 | 1-162-911-11 | s CERAMIC, CHIP 6PF 50V                                 |
| C30                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C31                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C32                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C33                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C34                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C35                 | 1-135-211-11 | s TANTALUM 6.8uF 20% 6.3                                |
| C36                 | 1-135-211-11 | s TANTALUM 6.8uF 20% 6.3                                |
| C37                 | 1-135-211-11 | s TANTALUM 6.8uF 20% 6.3                                |
| C38                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C39                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C40                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C41                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C42                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C43                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C44                 | 1-135-181-21 | s TANTALUM, CHIP 4.7uF 10% 6.3V                         |
| C45                 | 1-162-911-11 | s CERAMIC, CHIP 6PF 50V                                 |
| C46                 | 1-162-913-11 | s CERAMIC 8PF 0.5PF 50V                                 |
| C47                 | 1-162-909-11 | s CERAMIC 4PF 0.25PF 50V                                |
| C48                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C49                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C50                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C51                 | 1-162-911-11 | s CERAMIC, CHIP 6PF 50V                                 |
| C52                 | 1-162-918-11 | s CERAMIC, CHIP 18PF 5% 50V                             |
| C53                 | 1-135-217-21 | s TANTALUM 15uF 20% 6.3                                 |
| C54                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                            |
| C55                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                          |
| C56                 | 1-162-916-11 | s CERAMIC, CHIP 12PF 5% 50V                             |
| C57                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                          |

## (IF-354P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| C58                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C59                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V  |
| C60                 | 1-162-910-11 | s CERAMIC 5PF 0.25PF 50V        |
| C61                 | 1-162-916-11 | s CERAMIC, CHIP 12PF 5% 50V     |
| C62                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C63                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C64                 | 1-162-911-11 | s CERAMIC, CHIP 6PF 50V         |
| CN1                 | 1-569-607-11 | s CONNECTOR, BOARD TO BOARD 24P |
| CN2                 | 1-569-607-11 | s CONNECTOR, BOARD TO BOARD 24P |
| IC1                 | 8-752-332-69 | s IC CXL5504M                   |
| IC2                 | 8-759-242-64 | s IC TC4W53F                    |
| IC3                 | 8-759-209-97 | s IC TC4S81F                    |
| IC4                 | 8-759-209-57 | s IC TC4S69F                    |
| L1                  | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L2                  | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L3                  | 1-410-717-31 | s INDUCTOR, CHIP 100uH          |
| L4                  | 1-408-790-00 | s INDUCTOR CHIP 120uH           |
| L5                  | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L6                  | 1-408-797-11 | s INDUCTOR CHIP 470uH           |
| L7                  | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L8                  | 1-408-793-21 | s INDUCTOR CHIP 220uH           |
| L9                  | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L10                 | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L11                 | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L12                 | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| L13                 | 1-408-781-00 | s INDUCTOR CHIP 22uH            |
| Q1                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q2                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q3                  | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q4                  | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q5                  | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q6                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q7                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q8                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q9                  | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q10                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q11                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| Q12                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q13                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| Q14                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| Q15                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q16                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| Q17                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q18                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q19                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q20                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q21                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| Q22                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q23                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q24                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6         |
| Q25                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q26                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q27                 | 8-729-117-32 | s TRANSISTOR 2SC4177            |
| Q28                 | 8-729-427-74 | s TRANSISTOR XP4601             |
| Q29                 | 8-729-427-74 | s TRANSISTOR XP4601             |
| Q30                 | 8-729-427-74 | s TRANSISTOR XP4601             |
| Q31                 | 8-729-427-83 | s TRANSISTOR XP6501             |

## (IF-354P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| Q32                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q33                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q34                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q35                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q36                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q37                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q38                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q39                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q40                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q41                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q42                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q43                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q44                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q45                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q46                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q47                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q48                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q49                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q50                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q51                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q52                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q53                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q54                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q55                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q56                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q57                 | 8-729-427-74 | s TRANSISTOR XP4601         |
| Q58                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q59                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q60                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q61                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q62                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q63                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q64                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| R1                  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R2                  | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R3                  | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R4                  | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R5                  | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W  |
| R6                  | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R7                  | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R8                  | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R9                  | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R10                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R11                 | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R12                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R13                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R14                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R15                 | 1-216-839-11 | s METAL, CHIP 33K 5% 1/16W  |
| R16                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R17                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W   |
| R18                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R19                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R20                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R21                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R22                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R23                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R24                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R25                 | 1-216-818-11 | s METAL, CHIP 560 5% 1/16W  |

## (IF-354P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R26                 | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R27                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R28                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R29                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R30                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R31                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R32                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R33                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R34                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R35                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R36                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R37                 | 1-216-822-11 | s METAL, CHIP 1.2K 5% 1/16W |
| R38                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R39                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R40                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R41                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R42                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R43                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R44                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R45                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R46                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R47                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R48                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R49                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R50                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R51                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R52                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R53                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R54                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R55                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R56                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R57                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R58                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R59                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R60                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R61                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R62                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R63                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R64                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R65                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R66                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R67                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R68                 | 1-218-704-11 | s METAL 3.3K 0.50% 1/16W    |
| R69                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R70                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R71                 | 1-218-704-11 | s METAL 3.3K 0.50% 1/16W    |
| R72                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R73                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R74                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R75                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R76                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R77                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R78                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R79                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R80                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R81                 | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R82                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R83                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R84                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |

## (IF-354P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R85                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R86                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R87                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R88                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R89                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R90                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R91                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R92                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R93                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R94                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R95                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R96                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R97                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R98                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R99                 | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R100                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R101                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R102                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R103                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R104                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R105                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R106                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R107                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R108                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R109                | 1-218-704-11 | s METAL 3.3K 0.50% 1/16W    |
| R110                | 1-216-789-11 | s METAL 2.2 5% 1/16W        |
| R111                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R112                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R113                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R114                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R115                | 1-218-688-11 | s METAL 680 0.50% 1/16W     |
| R116                | 1-216-789-11 | s METAL 2.2 5% 1/16W        |
| R117                | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R118                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R119                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R120                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R121                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R122                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R123                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R124                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R125                | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R126                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R127                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R128                | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R129                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R130                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R131                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R132                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R133                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R134                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R135                | 1-216-839-11 | s METAL, CHIP 33K 5% 1/16W  |
| R136                | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R137                | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R138                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R139                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R140                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R141                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R142                | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R143                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |

## (IF-354P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                |
|---------------------|--------------|-------------------------------|
| R144                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W   |
| R145                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R146                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W   |
| R147                | 1-218-708-11 | s METAL 4.7K 0.50% 1/16W      |
| R148                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R149                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R150                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W   |
| R151                | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R152                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W   |
| R153                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W   |
| R154                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R155                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R156                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R157                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W   |
| R158                | 1-218-739-11 | s METAL, CHIP 91K 0.50% 1/16W |
| R159                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| RV1                 | 1-238-089-11 | s RES, ADJ CERMET 4.7K        |
| RV2                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K       |
| RV3                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K       |
| RV4                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K       |
| RV5                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K       |
| RV6                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K       |
| RV7                 | 1-238-090-11 | s RES, ADJ CERMET 10K         |

## MB-380 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                   |
|---------------------|--------------|----------------------------------|
| 1pc                 | A-8271-139-A | o MOUNTED CIRCUIT BOARD, MB-380  |
| C1                  | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V    |
| C2                  | 1-135-160-21 | s TANTALUM, CHIP 15uF 10% 16V    |
| C3                  | 1-126-925-11 | s ELECT 470uF 20% 10V            |
| C4                  | 1-126-916-11 | s ELECT 1000uF 20% 6.3           |
| C5                  | 1-162-966-11 | s CERAMIC, CHIP 0.0022uF 10% 50V |
| C6                  | 1-162-966-11 | s CERAMIC, CHIP 0.0022uF 10% 50V |
| C7                  | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V    |
| C8                  | 1-135-160-21 | s TANTALUM, CHIP 15uF 10% 16V    |
| C9                  | 1-126-935-11 | s ELECT 470uF 20% 16V            |
| C10                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V      |
| C15                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V    |
| CN1                 | 1-565-151-11 | o PIN, CONNECTOR (ANGLE) 4P      |
| CN2                 | 1-691-630-21 | o CONNECTOR, FFC/FPC (ZIF) 20P   |
| CN3                 | 1-568-338-11 | s CONNECTOR, BOARD TO BOARD 24P  |
| CN4                 | 1-568-338-11 | s CONNECTOR, BOARD TO BOARD 24P  |
| CN5                 | 1-568-338-11 | s CONNECTOR, BOARD TO BOARD 24P  |
| CN6                 | 1-568-338-11 | s CONNECTOR, BOARD TO BOARD 24P  |
| CN7                 | 1-568-338-11 | s CONNECTOR, BOARD TO BOARD 24P  |
| CN8                 | 1-568-338-11 | s CONNECTOR, BOARD TO BOARD 24P  |
| CN9                 | 1-568-338-11 | s CONNECTOR, BOARD TO BOARD 24P  |
| CN10                | 1-690-670-12 | s CABLE, FLAT (1.0MM) 15P        |
| CN11                | 1-690-670-12 | s CABLE, FLAT (1.0MM) 15P        |
| CN12                | 1-565-150-11 | o PIN, CONNECTOR (ANGLE) 3P      |
| D1                  | 8-719-017-34 | s DIODE 02DZ20-TPHR3             |
| IC1                 | 8-759-009-10 | s IC MC14069UBF                  |
| IC2                 | 8-759-927-46 | s IC SN74HC00NS                  |
| IC3                 | 8-759-209-57 | s IC TC4S69F                     |
| L1                  | 1-412-032-11 | s INDUCTOR CHIP 100uH            |
| L2                  | 1-412-032-11 | s INDUCTOR CHIP 100uH            |
| L4                  | 1-412-026-11 | s INDUCTOR CHIP 1uH              |
| L5                  | 1-410-997-31 | s INDUCTOR CHIP 2.2uH            |
| L6                  | 1-410-997-31 | s INDUCTOR CHIP 2.2uH            |
| L7                  | 1-410-997-31 | s INDUCTOR CHIP 2.2uH            |
| L8                  | 1-410-997-31 | s INDUCTOR CHIP 2.2uH            |
| L9                  | 1-412-535-41 | s INDUCTOR 68UH                  |
| PW1                 | 1-466-696-11 | s CONVERTER (DC-DC)              |
| R1                  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W       |
| R2                  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W       |
| R3                  | 1-216-804-11 | s METAL 39 5% 1/16W              |
| R4                  | 1-216-804-11 | s METAL 39 5% 1/16W              |
| R5                  | 1-216-804-11 | s METAL 39 5% 1/16W              |
| R6                  | 1-216-804-11 | s METAL 39 5% 1/16W              |

PA-133 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | A-8271-136-A | o MOUNTED CIRCUIT BOARD, PA-133 |
| C2                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C3                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C4                  | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V  |
| C5                  | 1-135-154-21 | s TANTALUM, CHIP 3.3uF 20% 20V  |
| C6                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C7                  | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C8                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C9                  | 1-135-154-21 | s TANTALUM, CHIP 3.3uF 20% 20V  |
| C10                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C11                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C12                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C13                 | 1-135-167-21 | s TANTALUM, CHIP 68uF 20% 6.3V  |
| C14                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C15                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C16                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| IC2                 | 8-759-031-84 | s IC SC7S04F                    |
| IC3                 | 8-759-031-84 | s IC SC7S04F                    |
| IC4                 | 8-752-052-72 | s IC CXA1439M                   |
| L1                  | 1-412-032-11 | s INDUCTOR CHIP 100uH           |
| L2                  | 1-412-029-11 | s INDUCTOR CHIP 10uH            |
| Q1                  | 8-729-905-24 | s TRANSISTOR 2SA1576S           |
| Q2                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| R1                  | 1-216-822-11 | s METAL, CHIP 1.2K 5% 1/16W     |
| R2                  | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W      |
| R3                  | 1-216-838-11 | s METAL, CHIP 27K 5% 1/16W      |
| R4                  | 1-216-848-11 | s METAL, CHIP 180K 5% 1/16W     |
| R5                  | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W     |
| R8                  | 1-216-864-11 | s METAL, CHIP 0-OHM             |
| R9                  | 1-216-864-11 | s METAL, CHIP 0-OHM             |

PA-134 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | A-8271-138-A | o MOUNTED CIRCUIT BOARD, PA-134 |
| C2                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C3                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C4                  | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V  |
| C5                  | 1-135-154-21 | s TANTALUM, CHIP 3.3uF 20% 20V  |
| C6                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C7                  | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C8                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C9                  | 1-135-154-21 | s TANTALUM, CHIP 3.3uF 20% 20V  |
| C10                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C11                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C12                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C13                 | 1-135-167-21 | s TANTALUM, CHIP 68uF 20% 6.3V  |
| C14                 | 1-135-164-21 | s TANTALUM, CHIP 22uF 20% 10V   |
| C15                 | 1-135-164-21 | s TANTALUM, CHIP 22uF 20% 10V   |
| IC2                 | 8-759-031-84 | s IC SC7S04F                    |
| IC3                 | 8-752-052-72 | s IC CXA1439M                   |
| IC4                 | 8-759-031-84 | s IC SC7S04F                    |
| L1                  | 1-412-032-11 | s INDUCTOR CHIP 100uH           |
| L2                  | 1-412-029-11 | s INDUCTOR CHIP 10uH            |
| Q1                  | 8-729-905-24 | s TRANSISTOR 2SA1576S           |
| Q2                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q          |
| R1                  | 1-216-822-11 | s METAL, CHIP 1.2K 5% 1/16W     |
| R2                  | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W      |
| R3                  | 1-216-838-11 | s METAL, CHIP 27K 5% 1/16W      |
| R4                  | 1-216-848-11 | s METAL, CHIP 180K 5% 1/16W     |
| R5                  | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W     |
| R8                  | 1-216-864-11 | s METAL, CHIP 0-OHM             |
| R9                  | 1-216-864-11 | s METAL, CHIP 0-OHM             |

PR-158 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                                             |
|---------------------|--------------|------------------------------------------------------------|
| 1pc                 | A-8271-146-A | o MOUNTED CIRCUIT BOARD, PR-158<br>(DXC-930/960MD, XC-009) |
| C1                  | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V                            |
| C2                  | 1-162-910-11 | s CERAMIC 5PF 0.25PF 50V                                   |
| C3                  | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C4                  | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C5                  | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C6                  | 1-126-391-11 | s ELECT, CHIP 47uF 20% 6.3V                                |
| C7                  | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C8                  | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C9                  | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                               |
| C10                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C11                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                                |
| C12                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C13                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C14                 | 1-135-167-21 | s TANTALUM, CHIP 68uF 20% 6.3V                             |
| C15                 | 1-126-391-11 | s ELECT, CHIP 47uF 20% 6.3V                                |
| C16                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                             |
| C17                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                             |
| C18                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C19                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C20                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C21                 | 1-162-910-11 | s CERAMIC 5PF 0.25PF 50V                                   |
| C22                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C23                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C24                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C25                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C26                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C27                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C28                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C29                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C30                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C31                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                               |
| C32                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                                |
| C33                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C34                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                             |
| C35                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                                |
| C36                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C37                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C38                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C39                 | 1-135-167-21 | s TANTALUM, CHIP 68uF 20% 6.3V                             |
| C40                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C41                 | 1-162-964-11 | s CERAMIC 0.001uF 10% 50V                                  |
| C42                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                               |
| C43                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C44                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                                |
| C45                 | 1-135-177-21 | s TANTALUM, CHIP 1uF 10% 20V                               |
| C46                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                             |
| C47                 | 1-135-167-21 | s TANTALUM, CHIP 68uF 20% 6.3V                             |
| C48                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                              |
| C49                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                              |
| C50                 | 1-162-910-11 | s CERAMIC 5PF 0.25PF 50V                                   |
| C51                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C52                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C53                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C54                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                                |
| C55                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                             |
| C56                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                               |

(PR-158 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| C57                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C58                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C59                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C60                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V     |
| C61                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V    |
| C62                 | 1-135-177-21 | s TANTALUM, CHIP 1uF 10% 20V    |
| C63                 | 1-135-177-21 | s TANTALUM, CHIP 1uF 10% 20V    |
| C64                 | 1-135-177-21 | s TANTALUM, CHIP 1uF 10% 20V    |
| C65                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C66                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C67                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V    |
| C68                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V     |
| C69                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| C70                 | 1-162-949-11 | s CERAMIC 47PF 5% 50V           |
| C71                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V    |
| C72                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C73                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C74                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C75                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V    |
| C76                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C77                 | 1-135-167-21 | s TANTALUM, CHIP 68uF 20% 6.3V  |
| C78                 | 1-135-177-21 | s TANTALUM, CHIP 1uF 10% 20V    |
| C79                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C80                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C81                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C82                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C83                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C84                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| C85                 | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V     |
| C86                 | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V     |
| C87                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C88                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C89                 | 1-135-161-21 | s TANTALUM, CHIP 22uF 10% 10V   |
| C90                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C91                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| C92                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C93                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| C94                 | 1-135-208-11 | s TANTALUM 1uF 20% 10V          |
| C95                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C97                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C98                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C99                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C100                | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C101                | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C102                | 1-162-920-11 | s CERAMIC, CHIP 27PF 5% 50V     |
| C103                | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| C104                | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C105                | 1-135-161-21 | s TANTALUM, CHIP 22uF 10% 10V   |
| C106                | 1-135-152-21 | s TANTALUM, CHIP 1.5uF 10% 25V  |
| C107                | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C108                | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V     |
| C109                | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V     |
| C110                | 1-162-925-11 | s CERAMIC, CHIP 68PF 5% 50V     |
| C111                | 1-135-161-21 | s TANTALUM, CHIP 22uF 10% 10V   |
| C112                | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C113                | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C114                | 1-162-920-11 | s CERAMIC, CHIP 27PF 5% 50V     |
| C115                | 1-162-962-11 | s CERAMIC 470PF 10% 50V         |
| C116                | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |

## (PR-158 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| C117                | 1-126-391-11 | s ELECT, CHIP 47uF 20% 6.3V     |
| C118                | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C119                | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C120                | 1-162-918-11 | s CERAMIC, CHIP 18PF 5% 50V     |
| C121                | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C122                | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C123                | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C124                | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C125                | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V     |
| C126                | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C127                | 1-162-964-11 | s CERAMIC 0.001uF 10% 50V       |
| C128                | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| CN1                 | 1-569-607-11 | s CONNECTOR, BOARD TO BOARD 24P |
| CN2                 | 1-569-607-11 | s CONNECTOR, BOARD TO BOARD 24P |
| D1                  | 8-719-123-85 | s DIODE 1SS304                  |
| D2                  | 8-719-123-85 | s DIODE 1SS304                  |
| DL1                 | 1-415-730-21 | s DELAY LINE, LC 100ns          |
| DL2                 | 1-415-730-21 | s DELAY LINE, LC 100ns          |
| DL3                 | 1-415-730-21 | s DELAY LINE, LC 100ns          |
| DL4                 | 1-415-864-21 | s DELAY LINE, LC                |
| DL5                 | 1-415-763-21 | s DELAY LINE, LC                |
| DL6                 | 1-415-730-21 | s DELAY LINE, LC 100ns          |
| DL7                 | 1-415-730-21 | s DELAY LINE, LC 100ns          |
| DL8                 | 1-415-730-21 | s DELAY LINE, LC 100ns          |
| FL1                 | 1-409-496-21 | s FILTER, LC TRAP               |
| FL2                 | 1-409-496-21 | s FILTER, LC TRAP               |
| FL3                 | 1-409-496-21 | s FILTER, LC TRAP               |
| FL4                 | 1-239-212-21 | s FILTER, BAND PASS             |
| IC1                 | 8-759-030-16 | s IC MC34182M                   |
| IC2                 | 8-759-300-71 | s IC HD14053BFP                 |
| IC3                 | 8-759-234-77 | s IC TC4S66F                    |
| IC4                 | 8-759-234-77 | s IC TC4S66F                    |
| IC5                 | 8-759-209-57 | s IC TC4S69F                    |
| IC6                 | 8-759-030-16 | s IC MC34182M                   |
| IC7                 | 8-759-234-77 | s IC TC4S66F                    |
| IC8                 | 8-759-052-67 | s IC UPC2372GF-3B9              |
| IC9                 | 8-759-030-16 | s IC MC34182M                   |
| IC10                | 8-759-927-46 | s IC SN74HC00NS                 |
| IC11                | 8-759-926-37 | s IC SN74HC193ANS               |
| IC12                | 8-759-925-83 | s IC SN74HC27NS                 |
| IC13                | 8-759-635-27 | s IC M62352GP-E1                |
| IC14                | 8-759-906-59 | s IC CX22017                    |
| IC15                | 8-759-209-57 | s IC TC4S69F                    |
| IC16                | 8-759-635-27 | s IC M62352GP-E1                |
| IC17                | 8-752-056-59 | s IC CXA1592R                   |
| IC18                | 8-759-635-27 | s IC M62352GP-E1                |
| L1                  | 1-412-030-11 | s INDUCTOR CHIP 22uH            |
| L2                  | 1-412-030-11 | s INDUCTOR CHIP 22uH            |
| L3                  | 1-412-030-11 | s INDUCTOR CHIP 22uH            |
| L4                  | 1-412-030-11 | s INDUCTOR CHIP 22uH            |
| L5                  | 1-412-032-11 | s INDUCTOR CHIP 100uH           |
| L6                  | 1-412-032-11 | s INDUCTOR CHIP 100uH           |
| L7                  | 1-412-032-11 | s INDUCTOR CHIP 100uH           |
| L8                  | 1-412-030-11 | s INDUCTOR CHIP 22uH            |
| L12                 | 1-412-034-11 | s INDUCTOR CHIP 330uH           |
| L13                 | 1-412-034-11 | s INDUCTOR CHIP 330uH           |

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| Ref. No.<br>or Q'ty | Part No.     | SP Description          |
|---------------------|--------------|-------------------------|
| L14                 | 1-412-032-11 | s INDUCTOR CHIP 100uH   |
| LV1                 | 1-414-071-21 | s COIL, VAR             |
| Q1                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q2                  | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q3                  | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q4                  | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q5                  | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q6                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q7                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q8                  | 8-729-118-58 | s TRANSISTOR 2SK852-X4  |
| Q9                  | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q10                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q11                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q12                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q13                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q14                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q15                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q16                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q17                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q18                 | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q19                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q20                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q21                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q22                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q23                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q24                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q25                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q26                 | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q27                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q28                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q29                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q30                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q31                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q32                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q33                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q34                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q35                 | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q36                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q37                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q38                 | 8-729-118-58 | s TRANSISTOR 2SK852-X4  |
| Q39                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q40                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q41                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q42                 | 8-729-427-74 | s TRANSISTOR XP4601     |
| Q43                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q44                 | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q45                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q46                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q47                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q48                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q49                 | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q50                 | 8-729-429-98 | s TRANSISTOR XP1401     |
| Q51                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q52                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q53                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q54                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q55                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |

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| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| Q56                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q57                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q58                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q59                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q60                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q61                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q62                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q63                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q64                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q65                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q66                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q67                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q68                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q69                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q70                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q71                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q72                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q73                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q74                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q75                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q76                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q77                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q78                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q79                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q80                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q81                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q82                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q83                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q84                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q85                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q87                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q89                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q90                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| R1                  | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R2                  | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R3                  | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R4                  | 1-218-330-11 | s METAL 11K 0.50% 1/16W     |
| R5                  | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R6                  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R7                  | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W  |
| R8                  | 1-220-373-11 | s METAL 620 0.50% 1/16W     |
| R9                  | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R10                 | 1-218-457-11 | s METAL 910 0.50% 1/16W     |
| R11                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R12                 | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W  |
| R13                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R14                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R15                 | 1-216-840-11 | s METAL, CHIP 39K 5% 1/16W  |
| R16                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R17                 | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W |
| R18                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R19                 | 1-216-850-11 | s METAL 270K 5% 1/16W       |
| R20                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R21                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R22                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R23                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R24                 | 1-218-724-11 | s METAL 22K 0.50% 1/16W     |
| R25                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |

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| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R26                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R27                 | 1-218-484-11 | s METAL 750 0.50% 1/16W     |
| R28                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R29                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R30                 | 1-218-705-11 | s METAL 3.6K 0.50% 1/16W    |
| R31                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R32                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R33                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R34                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R35                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R36                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R37                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R38                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R39                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R40                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R41                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R42                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R43                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R44                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R45                 | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R46                 | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R47                 | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R48                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R49                 | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W  |
| R50                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R51                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R52                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R53                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R54                 | 1-216-840-11 | s METAL, CHIP 39K 5% 1/16W  |
| R55                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R56                 | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W |
| R57                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R58                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R59                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R60                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R62                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R63                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R64                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R65                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R66                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R67                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R68                 | 1-218-484-11 | s METAL 750 0.50% 1/16W     |
| R69                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R70                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R71                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R72                 | 1-218-705-11 | s METAL 3.6K 0.50% 1/16W    |
| R73                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R74                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R75                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R76                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R77                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R78                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R79                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R80                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R81                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R82                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R83                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R84                 | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R85                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W  |



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| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| R86                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R87                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R88                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R89                 | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W     |
| R90                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R91                 | 1-216-840-11 | s METAL, CHIP 39K 5% 1/16W     |
| R92                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R93                 | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W    |
| R94                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R95                 | 1-216-850-11 | s METAL 270K 5% 1/16W          |
| R96                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R97                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R98                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R99                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W    |
| R100                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R101                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R102                | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W    |
| R103                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R104                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R105                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R106                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R107                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R108                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R109                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R110                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R111                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R112                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R113                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R114                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R115                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R116                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R117                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R118                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R119                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R120                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R121                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R122                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R123                | 1-218-484-11 | s METAL 750 0.50% 1/16W        |
| R124                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R125                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R126                | 1-218-705-11 | s METAL 3.6K 0.50% 1/16W       |
| R127                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R128                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R129                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R130                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R131                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R132                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R133                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W    |
| R134                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R135                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R136                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R137                | 1-218-253-11 | s METAL, CHIP 2.32K 0.5% 1/10W |
| R138                | 1-218-255-11 | s METAL, CHIP 2.67K 0.5% 1/10W |
| R139                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R140                | 1-216-795-11 | s METAL 6.8K 0.50% 1/16W       |
| R141                | 1-216-865-11 | s METAL 3K 0.50% 1/16W         |
| R142                | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W     |
| R151                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R153                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |

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| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| R154                | 1-216-864-11 | s METAL, CHIP 0-OHM            |
| R155                | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W     |
| R156                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R157                | 1-218-727-11 | s METAL 30K 0.50% 1/16W        |
| R158                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R159                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R160                | 1-218-727-11 | s METAL 30K 0.50% 1/16W        |
| R161                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R162                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R163                | 1-218-727-11 | s METAL 30K 0.50% 1/16W        |
| R164                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R165                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R168                | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W    |
| R169                | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W    |
| R170                | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W    |
| R171                | 1-218-256-11 | s METAL, CHIP 3.32K 0.5% 1/10W |
| R172                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R173                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R174                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R175                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R176                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |
| R177                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R178                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R179                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R180                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R181                | 1-218-271-11 | s METAL 2K 0.50% 1/16W         |
| R182                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R183                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R184                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W    |
| R185                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R186                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R187                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R188                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R189                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R190                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R191                | 1-218-271-11 | s METAL 2K 0.50% 1/16W         |
| R192                | 1-216-839-11 | s METAL, CHIP 33K 5% 1/16W     |
| R193                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R194                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R195                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R196                | 1-218-252-11 | s METAL, CHIP 2.26K 0.5% 1/10W |
| R197                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R198                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R199                | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W    |
| R200                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R201                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R202                | 1-218-289-11 | s METAL 510 5% 1/16W           |
| R203                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W     |
| R204                | 1-218-289-11 | s METAL 510 5% 1/16W           |
| R205                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W    |
| R206                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R207                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W    |
| R209                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R210                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |
| R211                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |
| R213                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R214                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R215                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R216                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |

## (PR-158 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R217                | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W  |
| R218                | 1-218-697-11 | s METAL, 1.6K 0.50% 1/16W   |
| R219                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R220                | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R221                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R222                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R223                | 1-218-271-11 | s METAL, 2K 0.50% 1/16W     |
| R224                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R225                | 1-218-271-11 | s METAL, 2K 0.50% 1/16W     |
| R226                | 1-218-724-11 | s METAL, 22K 0.50% 1/16W    |
| R227                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R228                | 1-218-724-11 | s METAL, 22K 0.50% 1/16W    |
| R229                | 1-216-839-11 | s METAL, CHIP 33K 5% 1/16W  |
| R230                | 1-218-724-11 | s METAL, 22K 0.50% 1/16W    |
| R231                | 1-216-838-11 | s METAL, CHIP 27K 5% 1/16W  |
| R232                | 1-216-838-11 | s METAL, CHIP 27K 5% 1/16W  |
| R233                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R234                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R235                | 1-218-724-11 | s METAL, 22K 0.50% 1/16W    |
| R236                | 1-218-724-11 | s METAL, 22K 0.50% 1/16W    |
| R237                | 1-218-724-11 | s METAL, 22K 0.50% 1/16W    |
| R238                | 1-218-704-11 | s METAL, 3.3K 0.50% 1/16W   |
| R239                | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R241                | 1-218-289-11 | s METAL, 510 5% 1/16W       |
| R242                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R243                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R244                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R245                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R246                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R247                | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R248                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R249                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R250                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R251                | 1-218-704-11 | s METAL, 3.3K 0.50% 1/16W   |
| R252                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R253                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R254                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R255                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R256                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R257                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R258                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R259                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R260                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R261                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R262                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R263                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R264                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R265                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R266                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R267                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R268                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R269                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R270                | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R271                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R272                | 1-216-818-11 | s METAL, CHIP 560 5% 1/16W  |
| R274                | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R275                | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R276                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R277                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |

## (PR-158 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R278                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R279                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R280                | 1-216-865-11 | s METAL, 3K 0.50% 1/16W     |
| R281                | 1-216-865-11 | s METAL, 3K 0.50% 1/16W     |
| R282                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R283                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R284                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R285                | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R286                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R287                | 1-216-822-11 | s METAL, CHIP 1.2K 5% 1/16W |
| R288                | 1-216-822-11 | s METAL, CHIP 1.2K 5% 1/16W |
| R289                | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R290                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R291                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R292                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R293                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R294                | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R295                | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R296                | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| RV1                 | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV2                 | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV3                 | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV5                 | 1-238-090-11 | s RES, ADJ CERMET 10K       |
| RV6                 | 1-238-089-11 | s RES, ADJ CERMET 4.7K      |
| RV7                 | 1-238-089-11 | s RES, ADJ CERMET 4.7K      |
| RV8                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K     |
| RV9                 | 1-238-089-11 | s RES, ADJ CERMET 4.7K      |
| RV10                | 1-238-088-11 | s RES, ADJ, CERMET 2.2K     |
| RV11                | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV12                | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV13                | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV14                | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV15                | 1-238-087-11 | s RES, ADJ CERMET 1K        |

PR-158P BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                                         |
|---------------------|--------------|--------------------------------------------------------|
| 1pc                 | A-8271-147-A | o MOUNTED CIRCUIT BOARD, PR-158P<br>(DXC-930P,XC-009P) |
| C1                  | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V                        |
| C2                  | 1-162-910-11 | s CERAMIC 5PF 0.25PF 50V                               |
| C3                  | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C4                  | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C5                  | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C6                  | 1-126-391-11 | s ELECT, CHIP 47uF 20% 6.3V                            |
| C7                  | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C8                  | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C9                  | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                           |
| C10                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C11                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                            |
| C12                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                    |
| C13                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C14                 | 1-135-167-21 | s TANTALUM, CHIP 68uF 20% 6.3V                         |
| C15                 | 1-126-391-11 | s ELECT, CHIP 47uF 20% 6.3V                            |
| C16                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                         |
| C17                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                         |
| C18                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C19                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                    |
| C20                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                    |
| C21                 | 1-162-910-11 | s CERAMIC 5PF 0.25PF 50V                               |
| C22                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C23                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                    |
| C24                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C25                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                    |
| C26                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C27                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                    |
| C28                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                    |
| C29                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                    |
| C30                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                    |
| C31                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                           |
| C32                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                            |
| C33                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C34                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                         |
| C35                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                            |
| C36                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C37                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                    |
| C38                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C39                 | 1-135-167-21 | s TANTALUM, CHIP 68uF 20% 6.3V                         |
| C40                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C41                 | 1-162-964-11 | s CERAMIC 0.001uF 10% 50V                              |
| C42                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                           |
| C43                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C44                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                            |
| C45                 | 1-135-177-21 | s TANTALUM, CHIP 1uF 10% 20V                           |
| C46                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                         |
| C47                 | 1-135-167-21 | s TANTALUM, CHIP 68uF 20% 6.3V                         |
| C48                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                          |
| C49                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                          |
| C50                 | 1-162-910-11 | s CERAMIC 5PF 0.25PF 50V                               |
| C51                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C52                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C53                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V                           |
| C54                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                            |
| C55                 | 1-135-162-21 | s TANTALUM, CHIP 33uF 10% 6.3V                         |
| C56                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                           |

(PR-158P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| C57                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C58                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C59                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C60                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V     |
| C61                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V    |
| C62                 | 1-135-177-21 | s TANTALUM, CHIP 1uF 10% 20V    |
| C63                 | 1-135-177-21 | s TANTALUM, CHIP 1uF 10% 20V    |
| C64                 | 1-135-177-21 | s TANTALUM, CHIP 1uF 10% 20V    |
| C65                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C66                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C67                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V    |
| C68                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V     |
| C69                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| C70                 | 1-162-949-11 | s CERAMIC 47PF 5% 50V           |
| C71                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V    |
| C72                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C73                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C74                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C75                 | 1-135-091-00 | s TANTALUN, CHIP 1uF 10% 16V    |
| C76                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C77                 | 1-135-167-21 | s TANTALUM, CHIP 68uF 20% 6.3V  |
| C78                 | 1-135-177-21 | s TANTALUM, CHIP 1uF 10% 20V    |
| C79                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C80                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C81                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C82                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C83                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C84                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| C85                 | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V     |
| C86                 | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V     |
| C87                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C88                 | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C89                 | 1-135-161-21 | s TANTALUM, CHIP 22uF 10% 10V   |
| C90                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C91                 | 1-164-155-11 | s CERAMIC 75PF 5% 50V           |
| C92                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C93                 | 1-164-155-11 | s CERAMIC 75PF 5% 50V           |
| C94                 | 1-135-208-11 | s TANTALUM 1uF 20% 10V          |
| C95                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V  |
| C96                 | 1-135-216-11 | s TANTALUM 10uF 20% 10V         |
| C97                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C98                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C99                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V        |
| C100                | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C101                | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C102                | 1-162-920-11 | s CERAMIC, CHIP 27PF 5% 50V     |
| C103                | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| C104                | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C105                | 1-135-161-21 | s TANTALUM, CHIP 22uF 10% 10V   |
| C106                | 1-135-152-21 | s TANTALUM, CHIP 1.5uF 10% 25V  |
| C107                | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C108                | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V     |
| C109                | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V     |
| C110                | 1-162-925-11 | s CERAMIC, CHIP 68PF 5% 50V     |
| C111                | 1-135-161-21 | s TANTALUM, CHIP 22uF 10% 10V   |
| C112                | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C113                | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C114                | 1-162-920-11 | s CERAMIC, CHIP 27PF 5% 50V     |
| C115                | 1-162-962-11 | s CERAMIC 470PF 10% 50V         |

## (PR-158P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| C116                | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| C117                | 1-126-391-11 | s ELECT, CHIP 47uF 20% 6.3V     |
| C118                | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C119                | 1-164-156-11 | s CERAMIC 0.1uF 25V             |
| C120                | 1-162-918-11 | s CERAMIC, CHIP 18PF 5% 50V     |
| C121                | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V   |
| C122                | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C123                | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V  |
| C124                | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C125                | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V     |
| C126                | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V |
| C127                | 1-162-964-11 | s CERAMIC 0.001uF 10% 50V       |
| C128                | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V    |
| CN1                 | 1-569-607-11 | s CONNECTOR, BOARD TO BOARD 24P |
| CN2                 | 1-569-607-11 | s CONNECTOR, BOARD TO BOARD 24P |
| D1                  | 8-719-123-85 | s DIODE 1SS304                  |
| D2                  | 8-719-123-85 | s DIODE 1SS304                  |
| DL1                 | 1-415-730-21 | s DELAY LINE, LC 100nS          |
| DL2                 | 1-415-730-21 | s DELAY LINE, LC 100nS          |
| DL3                 | 1-415-730-21 | s DELAY LINE, LC 100nS          |
| DL4                 | 1-415-864-21 | s DELAY LINE, LC                |
| DL5                 | 1-415-763-21 | s DELAY LINE, LC                |
| DL6                 | 1-415-730-21 | s DELAY LINE, LC 100nS          |
| DL7                 | 1-415-730-21 | s DELAY LINE, LC 100nS          |
| DL8                 | 1-415-730-21 | s DELAY LINE, LC 100nS          |
| FL1                 | 1-409-496-21 | s FILTER, LC TRAP               |
| FL2                 | 1-409-496-21 | s FILTER, LC TRAP               |
| FL3                 | 1-409-496-21 | s FILTER, LC TRAP               |
| FL4                 | 1-239-211-21 | s FILTER, BANDPASS              |
| IC1                 | 8-759-030-16 | s IC MC34182M                   |
| IC2                 | 8-759-300-71 | s IC HD14053BFP                 |
| IC3                 | 8-759-234-77 | s IC TC4S66F                    |
| IC4                 | 8-759-234-77 | s IC TC4S66F                    |
| IC5                 | 8-759-209-57 | s IC TC4S69F                    |
| IC6                 | 8-759-030-16 | s IC MC34182M                   |
| IC7                 | 8-759-234-77 | s IC TC4S66F                    |
| IC8                 | 8-759-052-67 | s IC UPC2372GF-3B9              |
| IC9                 | 8-759-030-16 | s IC MC34182M                   |
| IC10                | 8-759-927-46 | s IC SN74HC00NS                 |
| IC11                | 8-759-926-37 | s IC SN74HC193ANS               |
| IC12                | 8-759-925-83 | s IC SN74HC27NS                 |
| IC13                | 8-759-635-27 | s IC M62352GP-E1                |
| IC14                | 8-759-906-59 | s IC CX22017                    |
| IC15                | 8-759-209-57 | s IC TC4S69F                    |
| IC16                | 8-759-635-27 | s IC M62352GP-E1                |
| IC17                | 8-752-056-59 | s IC CXA1592R                   |
| IC18                | 8-759-635-27 | s IC M62352GP-E1                |
| L1                  | 1-412-030-11 | s INDUCTOR CHIP 22uH            |
| L2                  | 1-412-030-11 | s INDUCTOR CHIP 22uH            |
| L3                  | 1-412-030-11 | s INDUCTOR CHIP 22uH            |
| L4                  | 1-412-030-11 | s INDUCTOR CHIP 22uH            |
| L5                  | 1-412-032-11 | s INDUCTOR CHIP 100uH           |
| L6                  | 1-412-032-11 | s INDUCTOR CHIP 100uH           |
| L7                  | 1-412-032-11 | s INDUCTOR CHIP 100uH           |
| L8                  | 1-412-030-11 | s INDUCTOR CHIP 22uH            |
| L12                 | 1-412-034-11 | s INDUCTOR CHIP 330uH           |
| L13                 | 1-412-034-11 | s INDUCTOR CHIP 330uH           |

## (PR-158P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description          |
|---------------------|--------------|-------------------------|
| L14                 | 1-412-032-11 | s INDUCTOR CHIP 100uH   |
| LV1                 | 1-414-071-21 | s COIL, VAR             |
| Q1                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q2                  | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q3                  | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q4                  | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q5                  | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q6                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q7                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q8                  | 8-729-118-58 | s TRANSISTOR 2SK852-X4  |
| Q9                  | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q10                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q11                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q12                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q13                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q14                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q15                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q16                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q17                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q18                 | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q19                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q20                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q21                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q22                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q23                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q24                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q25                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q26                 | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q27                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q28                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q29                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q30                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q31                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q32                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q33                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q34                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q35                 | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q36                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q37                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q38                 | 8-729-118-58 | s TRANSISTOR 2SK852-X4  |
| Q39                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6 |
| Q40                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q41                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q42                 | 8-729-427-74 | s TRANSISTOR XP4601     |
| Q43                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q44                 | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q45                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q46                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q47                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q48                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q49                 | 8-729-427-83 | s TRANSISTOR XP6501     |
| Q50                 | 8-729-429-98 | s TRANSISTOR XP1401     |
| Q51                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q52                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q53                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q  |
| Q54                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |
| Q55                 | 8-729-117-32 | s TRANSISTOR 2SC4177    |

## (PR-158P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| Q56                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q57                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q58                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q59                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q60                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q61                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q62                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q63                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q64                 | 8-729-427-83 | s TRANSISTOR XP6501         |
| Q65                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q66                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q67                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q68                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q69                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q70                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q71                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q72                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q73                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q74                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q75                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q76                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q77                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q78                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q79                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q80                 | 8-729-926-19 | s TRANSISTOR 2SC4103-Q      |
| Q81                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q82                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q83                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q84                 | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q85                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q87                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q89                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q90                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| R1                  | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R2                  | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R3                  | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R4                  | 1-218-330-11 | s METAL 11K 0.50% 1/16W     |
| R5                  | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R6                  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R7                  | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W  |
| R8                  | 1-220-373-11 | s METAL 620 0.50% 1/16W     |
| R9                  | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R10                 | 1-218-457-11 | s METAL 910 0.50% 1/16W     |
| R11                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R12                 | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W  |
| R13                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R14                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R15                 | 1-216-840-11 | s METAL, CHIP 39K 5% 1/16W  |
| R16                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R17                 | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W |
| R18                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R19                 | 1-216-850-11 | s METAL 270K 5% 1/16W       |
| R20                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R21                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R22                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R23                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R24                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R25                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |

## (PR-158P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R26                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R27                 | 1-218-484-11 | s METAL 750 0.50% 1/16W     |
| R28                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R29                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R30                 | 1-218-705-11 | s METAL 3.6K 0.50% 1/16W    |
| R31                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R32                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R33                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R34                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R35                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R36                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R37                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R38                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R39                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R40                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R41                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R42                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R43                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R44                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R45                 | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R46                 | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R47                 | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R48                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R49                 | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W  |
| R50                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W  |
| R51                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R52                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R53                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R54                 | 1-216-840-11 | s METAL, CHIP 39K 5% 1/16W  |
| R55                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R56                 | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W |
| R57                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R58                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R59                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R60                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R62                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R63                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R64                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R65                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R66                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R67                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R68                 | 1-218-484-11 | s METAL 750 0.50% 1/16W     |
| R69                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R70                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R71                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R72                 | 1-218-705-11 | s METAL 3.6K 0.50% 1/16W    |
| R73                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R74                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R75                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R76                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R77                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R78                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R79                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R80                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R81                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R82                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R83                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R84                 | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R85                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W  |

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| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| R86                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R87                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R88                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R89                 | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W     |
| R90                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R91                 | 1-216-840-11 | s METAL, CHIP 39K 5% 1/16W     |
| R92                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R93                 | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W    |
| R94                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R95                 | 1-216-850-11 | s METAL 270K 5% 1/16W          |
| R96                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R97                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R98                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R99                 | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W    |
| R100                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R101                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R102                | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W    |
| R103                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R104                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R105                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R106                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R107                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R108                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R109                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R110                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R111                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R112                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R113                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R114                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R115                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R116                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R117                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R118                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R119                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R120                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R121                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R122                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R123                | 1-218-484-11 | s METAL 750 0.50% 1/16W        |
| R124                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R125                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R126                | 1-218-705-11 | s METAL 3.6K 0.50% 1/16W       |
| R127                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R128                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R129                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R130                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R131                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R132                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R133                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W    |
| R134                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R135                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R136                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R137                | 1-218-259-11 | s METAL, CHIP 13.7K 0.5% 1/10W |
| R138                | 1-218-254-11 | s METAL, CHIP 2.55K 0.5% 1/10W |
| R140                | 1-218-295-11 | s METAL 5.6K 0.50% 1/16W       |
| R141                | 1-216-865-11 | s METAL 3K 0.50% 1/16W         |
| R142                | 1-218-721-11 | s METAL 16K 0.50% 1/16W        |
| R152                | 1-218-254-11 | s METAL, CHIP 2.55K 0.5% 1/10W |
| R153                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W     |
| R154                | 1-216-814-11 | s METAL, CHIP 270 5% 1/16W     |

## (PR-158P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| R155                | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W     |
| R156                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R157                | 1-218-729-11 | s METAL 36K 0.50% 1/16W        |
| R158                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R159                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W     |
| R160                | 1-218-729-11 | s METAL 36K 0.50% 1/16W        |
| R161                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W     |
| R162                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R163                | 1-218-729-11 | s METAL 36K 0.50% 1/16W        |
| R164                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R165                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W    |
| R166                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R167                | 1-218-257-11 | s METAL, CHIP 4.99K 0.5% 1/10W |
| R168                | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W    |
| R169                | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W    |
| R170                | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W    |
| R172                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R173                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R174                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R175                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R176                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |
| R177                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R178                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R179                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R180                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R181                | 1-218-271-11 | s METAL 2K 0.50% 1/16W         |
| R182                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R183                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W    |
| R184                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W    |
| R185                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R186                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R187                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R188                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R189                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R190                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W     |
| R191                | 1-218-271-11 | s METAL 2K 0.50% 1/16W         |
| R192                | 1-216-839-11 | s METAL, CHIP 33K 5% 1/16W     |
| R193                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W      |
| R194                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W    |
| R197                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R198                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W    |
| R199                | 1-216-824-11 | s METAL, CHIP 1.8K 5% 1/16W    |
| R200                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R201                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R202                | 1-218-289-11 | s METAL 510 5% 1/16W           |
| R203                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W     |
| R204                | 1-218-289-11 | s METAL 510 5% 1/16W           |
| R205                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W    |
| R206                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R207                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W    |
| R208                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |
| R209                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R210                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |
| R211                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |
| R213                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R214                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W    |
| R215                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W    |
| R216                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |
| R217                | 1-216-836-11 | s METAL, CHIP 18K 5% 1/16W     |

## (PR-158P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R218                | 1-218-697-11 | s METAL 1.6K 0.50% 1/16W    |
| R219                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R220                | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R221                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R222                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R223                | 1-218-271-11 | s METAL 2K 0.50% 1/16W      |
| R224                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R225                | 1-218-271-11 | s METAL 2K 0.50% 1/16W      |
| R226                | 1-218-724-11 | s METAL 22K 0.50% 1/16W     |
| R227                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R228                | 1-218-724-11 | s METAL 22K 0.50% 1/16W     |
| R229                | 1-216-839-11 | s METAL, CHIP 33K 5% 1/16W  |
| R230                | 1-218-724-11 | s METAL 22K 0.50% 1/16W     |
| R231                | 1-216-838-11 | s METAL, CHIP 27K 5% 1/16W  |
| R232                | 1-216-838-11 | s METAL, CHIP 27K 5% 1/16W  |
| R233                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R234                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R235                | 1-218-724-11 | s METAL 22K 0.50% 1/16W     |
| R236                | 1-218-724-11 | s METAL 22K 0.50% 1/16W     |
| R237                | 1-218-724-11 | s METAL 22K 0.50% 1/16W     |
| R238                | 1-218-704-11 | s METAL 3.3K 0.50% 1/16W    |
| R240                | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R241                | 1-218-289-11 | s METAL 510 5% 1/16W        |
| R242                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R243                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R244                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R245                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R246                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R247                | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R248                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R249                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R250                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R251                | 1-218-704-11 | s METAL 3.3K 0.50% 1/16W    |
| R252                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R253                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R254                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R255                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R256                | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W |
| R257                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R258                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R259                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R260                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R261                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R262                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R263                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R264                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R265                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R266                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R267                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R268                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R269                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R270                | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R271                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R272                | 1-216-818-11 | s METAL, CHIP 560 5% 1/16W  |
| R273                | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W    |
| R274                | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R275                | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R276                | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R277                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |

## (PR-158P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R278                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R279                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R280                | 1-216-865-11 | s METAL 3K 0.50% 1/16W      |
| R281                | 1-216-865-11 | s METAL 3K 0.50% 1/16W      |
| R282                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R283                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R284                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R285                | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R286                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R287                | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R288                | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R289                | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W |
| R290                | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R291                | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R292                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R293                | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R294                | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R295                | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| R296                | 1-216-828-11 | s METAL, CHIP 3.9K 5% 1/16W |
| RV1                 | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV2                 | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV3                 | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV5                 | 1-238-090-11 | s RES, ADJ CERMET 10K       |
| RV6                 | 1-238-089-11 | s RES, ADJ CERMET 4.7K      |
| RV7                 | 1-238-089-11 | s RES, ADJ CERMET 4.7K      |
| RV8                 | 1-238-088-11 | s RES, ADJ, CERMET 2.2K     |
| RV9                 | 1-238-089-11 | s RES, ADJ CERMET 4.7K      |
| RV10                | 1-238-088-11 | s RES, ADJ, CERMET 2.2K     |
| RV11                | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV12                | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV13                | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV14                | 1-238-087-11 | s RES, ADJ CERMET 1K        |
| RV15                | 1-238-087-11 | s RES, ADJ CERMET 1K        |

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SG-194 BOARD  
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| Ref. No.<br>or Q'ty | Part No.     | SP Description                                             |
|---------------------|--------------|------------------------------------------------------------|
| 1pc                 | A-8271-141-A | o MOUNTED CIRCUIT BOARD, SG-194<br>(DXC-930/960MD, XC-009) |
| C1                  | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                              |
| C2                  | 1-164-227-11 | s CERAMIC 0.022uF 10% 25V                                  |
| C3                  | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                              |
| C4                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                             |
| C5                  | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C6                  | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                              |
| C7                  | 1-126-392-11 | s ELECT, CHIP 100uF 20% 6.3V                               |
| C8                  | 1-126-392-11 | s ELECT, CHIP 100uF 20% 6.3V                               |
| C9                  | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C10                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                               |
| C11                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                                |
| C12                 | 1-162-920-11 | s CERAMIC, CHIP 27PF 5% 50V                                |
| C13                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                   |
| C14                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V                                   |
| C15                 | 1-162-918-11 | s CERAMIC, CHIP 18PF 5% 50V                                |
| C16                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                   |
| C17                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                   |
| C18                 | 1-135-149-21 | s TANTALUM, CHIP 2.2uF 10% 10V                             |
| C19                 | 1-135-149-21 | s TANTALUM, CHIP 2.2uF 10% 10V                             |
| C20                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                               |
| C21                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                             |
| C22                 | 1-135-166-21 | s TANTALUM, CHIP 47uF 10% 10V                              |
| C23                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                             |
| C24                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                                |
| C25                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C26                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                              |
| C27                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                              |
| C28                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C29                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V                                   |
| C30                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C31                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V                                   |
| C32                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C33                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                             |
| C34                 | 1-135-166-21 | s TANTALUM, CHIP 47uF 10% 10V                              |
| C35                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C36                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                             |
| C37                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5% 50V                                |
| C38                 | 1-164-363-11 | s CERAMIC 560PF 5% 50V                                     |
| C39                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                   |
| C40                 | 1-164-677-11 | s CERAMIC 0.033uF 10% 16V                                  |
| C41                 | 1-135-215-21 | s TANTALUM 6.8uF 20% 16V                                   |
| C42                 | 1-135-215-21 | s TANTALUM 6.8uF 20% 16V                                   |
| C43                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                                |
| C44                 | 1-135-216-11 | s TANTALUM 10uF 20% 10V                                    |
| C45                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C46                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                        |
| C47                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                                |
| C48                 | 1-135-216-11 | s TANTALUM 10uF 20% 10V                                    |
| C49                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                                |
| C50                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                   |
| C51                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                   |
| C52                 | 1-162-918-11 | s CERAMIC, CHIP 18PF 5% 50V                                |
| C53                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                                |
| C54                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                                |
| C56                 | 1-162-957-11 | s CERAMIC 220PF 5% 50V                                     |
| C57                 | 1-162-957-11 | s CERAMIC 220PF 5% 50V                                     |

(SG-194 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                    |
|---------------------|--------------|-----------------------------------|
| C58                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V      |
| C59                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V      |
| C60                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V       |
| C61                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V          |
| C62                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V          |
| C63                 | 1-164-315-11 | s CERAMIC 470PF 5% 50V            |
| C65                 | 1-135-149-21 | s TANTALUM, CHIP 2.2uF 10% 10V    |
| C67                 | 1-164-156-11 | s CERAMIC 0.1uF 25V               |
| CN1                 | 1-569-607-11 | s CONNECTOR, BOARD TO BOARD 24P   |
| CP1                 | 1-577-181-11 | s OSCILLATOR, CRYSTAL 28.63636MHz |
| CP2                 | 1-577-089-11 | s OSCILLATOR, CRYSTAL 14.31818MHz |
| D1                  | 8-719-800-76 | s DIODE 1SS226                    |
| D2                  | 8-719-800-76 | s DIODE 1SS226                    |
| D3                  | 8-719-800-76 | s DIODE 1SS226                    |
| IC1                 | 8-759-100-96 | s IC UPC4558G2                    |
| IC2                 | 8-759-300-71 | s IC HD14053BFP                   |
| IC3                 | 8-759-300-71 | s IC HD14053BFP                   |
| IC4                 | 8-759-987-27 | s IC LM1881M                      |
| IC5                 | 8-759-702-08 | s IC NJM360M                      |
| IC6                 | 8-752-335-47 | s IC CXD1216M                     |
| IC7                 | 8-759-234-77 | s IC TC4S66F                      |
| IC8                 | 8-759-030-16 | s IC MC34182M                     |
| IC10                | 8-752-332-67 | s IC CXD1217M                     |
| IC11                | 8-759-239-34 | s IC TC74HC4538AF                 |
| IC12                | 8-759-100-94 | s IC UPC358G2                     |
| IC13                | 8-759-902-88 | s IC SN74LS123NS                  |
| IC14                | 8-759-209-57 | s IC TC4S69F                      |
| L2                  | 1-412-031-11 | s INDUCTOR CHIP 47uH              |
| L3                  | 1-412-032-11 | s INDUCTOR CHIP 100uH             |
| L4                  | 1-412-031-11 | s INDUCTOR CHIP 47uH              |
| Q1                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q            |
| Q2                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q            |
| Q3                  | 8-729-117-32 | s TRANSISTOR 2SC4177              |
| Q4                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q            |
| Q5                  | 8-729-118-58 | s TRANSISTOR 2SK852-X4            |
| Q6                  | 8-729-117-32 | s TRANSISTOR 2SC4177              |
| Q7                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6           |
| Q8                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6           |
| Q9                  | 8-729-117-32 | s TRANSISTOR 2SC4177              |
| Q10                 | 8-729-117-32 | s TRANSISTOR 2SC4177              |
| Q11                 | 8-729-117-32 | s TRANSISTOR 2SC4177              |
| Q12                 | 8-729-117-32 | s TRANSISTOR 2SC4177              |
| R1                  | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W       |
| R2                  | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W        |
| R3                  | 1-216-801-11 | s METAL 22 0.50% 1/16W            |
| R4                  | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W         |
| R5                  | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W        |
| R6                  | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W        |
| R7                  | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W        |
| R8                  | 1-216-851-11 | s METAL, CHIP 330K 5% 1/16W       |
| R9                  | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W       |
| R10                 | 1-218-725-11 | s METAL 24K 0.50% 1/16W           |
| R11                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W       |
| R12                 | 1-216-847-11 | s METAL, CHIP 150K 5% 1/16W       |
| R13                 | 1-218-344-11 | s METAL 7.5K 0.50% 1/16W          |
| R14                 | 1-218-695-11 | s METAL 1.3K 0.50% 1/16W          |



## (SG-194 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                |
|---------------------|--------------|-------------------------------|
| R15                 | 1-218-289-11 | s METAL 510 5% 1/16W          |
| R16                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W   |
| R17                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W    |
| R18                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R19                 | 1-216-842-11 | s METAL, CHIP 56K 5% 1/16W    |
| R20                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W   |
| R21                 | 1-218-714-11 | s METAL 8.2K 0.50% 1/16W      |
| R22                 | 1-216-855-11 | s METAL 680K 5% 1/16W         |
| R23                 | 1-216-818-11 | s METAL, CHIP 560 5% 1/16W    |
| R24                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W   |
| R25                 | 1-216-811-11 | s METAL, CHIP 150 5% 1/16W    |
| R26                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R28                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R30                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R32                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R33                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R35                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R36                 | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W   |
| R37                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R38                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W   |
| R39                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W   |
| R40                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W   |
| R41                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R42                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R43                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R44                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R45                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R46                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W    |
| R47                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R48                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R50                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W   |
| R51                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R52                 | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W   |
| R54                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W     |
| R55                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W     |
| R56                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W    |
| R57                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R59                 | 1-218-740-11 | s METAL 100K 0.50% 1/16W      |
| R60                 | 1-218-883-11 | s METAL, CHIP 33K 0.50% 1/16W |
| R61                 | 1-218-724-11 | s METAL 22K 0.50% 1/16W       |
| R62                 | 1-218-701-11 | s METAL 2.4K 0.50% 1/16W      |
| R63                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W       |
| R64                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W    |
| R65                 | 1-218-668-11 | s METAL, CHIP 100 0.50% 1/16W |
| R66                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W    |
| R67                 | 1-218-668-11 | s METAL, CHIP 100 0.50% 1/16W |
| R68                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W    |
| R69                 | 1-216-838-11 | s METAL, CHIP 27K 5% 1/16W    |
| R70                 | 1-216-804-11 | s METAL 39 5% 1/16W           |
| R71                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R72                 | 1-218-723-11 | s METAL 20K 0.50% 1/16W       |
| R73                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W       |
| R74                 | 1-218-727-11 | s METAL 30K 0.50% 1/16W       |
| R75                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W       |
| R76                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W       |
| R77                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R78                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R79                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R80                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |

## (SG-194 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R81                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W  |
| R82                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W  |
| R83                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R84                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W     |
| R85                 | 1-216-865-11 | s METAL 3K 0.50% 1/16W      |
| R86                 | 1-218-295-11 | s METAL 5.6K 0.50% 1/16W    |
| R87                 | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R88                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R89                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R90                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R91                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R92                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R93                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R94                 | 1-216-819-11 | s METAL, CHIP 680 5% 1/16W  |
| R95                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R96                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R97                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| RV1                 | 1-238-090-11 | s RES, ADJ CERMET 10K       |

SG-194P BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                                          |
|---------------------|--------------|---------------------------------------------------------|
| 1pc                 | A-8271-142-A | o MOUNTED CIRCUIT BOARD, SG-194P<br>(DXC-930P, XC-009P) |
| C1                  | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                           |
| C2                  | 1-164-227-11 | s CERAMIC 0.022uF 10% 25V                               |
| C3                  | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                           |
| C4                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                          |
| C5                  | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C6                  | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                           |
| C7                  | 1-126-392-11 | s ELECT, CHIP 100uF 20% 6.3V                            |
| C8                  | 1-126-392-11 | s ELECT, CHIP 100uF 20% 6.3V                            |
| C9                  | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                            |
| C10                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V                            |
| C11                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                             |
| C12                 | 1-162-920-11 | s CERAMIC, CHIP 27PF 5% 50V                             |
| C13                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                |
| C14                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V                                |
| C15                 | 1-162-916-11 | s CERAMIC, CHIP 12PF 5% 50V                             |
| C16                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                |
| C17                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                |
| C18                 | 1-135-149-21 | s TANTALUM, CHIP 2.2uF 10% 10V                          |
| C19                 | 1-135-149-21 | s TANTALUM, CHIP 2.2uF 10% 10V                          |
| C20                 | 1-135-091-00 | s TANTALUM, CHIP 1uF 10% 16V                            |
| C21                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                          |
| C22                 | 1-135-166-21 | s TANTALUM, CHIP 47uF 10% 10V                           |
| C23                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                          |
| C24                 | 1-135-155-21 | s TANTAL CHIP 4.7uF 10% 16V                             |
| C25                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C26                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                           |
| C27                 | 1-135-159-21 | s TANTALUM, CHIP 10uF 10% 20V                           |
| C28                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C29                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V                                |
| C30                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C31                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V                                |
| C32                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C33                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                          |
| C34                 | 1-135-166-21 | s TANTALUM, CHIP 47uF 10% 10V                           |
| C35                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C36                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                          |
| C37                 | 1-162-915-11 | s CERAMIC, CHIP 10PF 5PF 50V                            |
| C38                 | 1-164-363-11 | s CERAMIC 560PF 5% 50V                                  |
| C39                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                |
| C40                 | 1-164-677-11 | s CERAMIC 0.033uF 10% 16V                               |
| C41                 | 1-135-215-21 | s TANTALUM 6.8uF 20% 16V                                |
| C42                 | 1-135-215-21 | s TANTALUM 6.8uF 20% 16V                                |
| C43                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                             |
| C44                 | 1-135-216-11 | s TANTALUM 10uF 20% 10V                                 |
| C45                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C46                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C47                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                             |
| C48                 | 1-135-216-11 | s TANTALUM 10uF 20% 10V                                 |
| C49                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                             |
| C50                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                |
| C51                 | 1-135-190-21 | s TANTALUM 0.1uF 20% 20V                                |
| C52                 | 1-162-918-11 | s CERAMIC, CHIP 18PF 5% 50V                             |
| C53                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                             |
| C54                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V                             |
| C56                 | 1-162-957-11 | s CERAMIC 220PF 5% 50V                                  |
| C57                 | 1-162-957-11 | s CERAMIC 220PF 5% 50V                                  |

(SG-194P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                      |
|---------------------|--------------|-------------------------------------|
| C58                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V        |
| C59                 | 1-162-927-11 | s CERAMIC, CHIP 100PF 5% 50V        |
| C60                 | 1-162-923-11 | s CERAMIC, CHIP 47PF 5% 50V         |
| C61                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V            |
| C62                 | 1-135-210-11 | s TANTALUM 4.7uF 20% 10V            |
| C63                 | 1-164-315-11 | s CERAMIC 470PF 5% 50V              |
| C65                 | 1-135-149-21 | s TANTALUM, CHIP 2.2uF 10% 10V      |
| C67                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                 |
| CN1                 | 1-569-607-11 | s CONNECTOR, BOARD TO BOARD 24P     |
| CP1                 | 1-577-182-11 | s OSCILLATOR, CRYSTAL               |
| CP2                 | 1-577-183-11 | s OSCILLATOR, CRYSTAL 17.734475 MHZ |
| D1                  | 8-719-800-76 | s DIODE 1SS226                      |
| D2                  | 8-719-800-76 | s DIODE 1SS226                      |
| D3                  | 8-719-800-76 | s DIODE 1SS226                      |
| IC1                 | 8-759-100-96 | s IC UPC4558G2                      |
| IC2                 | 8-759-300-71 | s IC HD14053BFP                     |
| IC3                 | 8-759-300-71 | s IC HD14053BFP                     |
| IC4                 | 8-759-987-27 | s IC LM1881M                        |
| IC5                 | 8-759-702-08 | s IC NJM360M                        |
| IC6                 | 8-752-335-47 | s IC CXD1216M                       |
| IC7                 | 8-759-234-77 | s IC TC4S66F                        |
| IC8                 | 8-759-030-16 | s IC MC34182M                       |
| IC10                | 8-752-332-67 | s IC CXD1217M                       |
| IC11                | 8-759-239-34 | s IC TC74HC4538AF                   |
| IC12                | 8-759-100-94 | s IC UPC358G2                       |
| IC13                | 8-759-902-88 | s IC SN74LS123NS                    |
| IC14                | 8-759-209-57 | s IC TC4S69F                        |
| L2                  | 1-412-031-11 | s INDUCTOR CHIP 47uH                |
| L3                  | 1-412-032-11 | s INDUCTOR CHIP 100uH               |
| L4                  | 1-412-031-11 | s INDUCTOR CHIP 47uH                |
| Q1                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q              |
| Q2                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q              |
| Q3                  | 8-729-117-32 | s TRANSISTOR 2SC4177                |
| Q4                  | 8-729-926-19 | s TRANSISTOR 2SC4103-Q              |
| Q5                  | 8-729-118-58 | s TRANSISTOR 2SK852-X4              |
| Q8                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6             |
| Q9                  | 8-729-117-32 | s TRANSISTOR 2SC4177                |
| Q10                 | 8-729-117-32 | s TRANSISTOR 2SC4177                |
| Q11                 | 8-729-117-32 | s TRANSISTOR 2SC4177                |
| Q12                 | 8-729-117-32 | s TRANSISTOR 2SC4177                |
| R1                  | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W         |
| R2                  | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W          |
| R3                  | 1-216-801-11 | s METAL 22 0.50% 1/16W              |
| R4                  | 1-218-285-11 | s METAL, CHIP 75 5% 1/16W           |
| R5                  | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W          |
| R6                  | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W          |
| R7                  | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W          |
| R8                  | 1-216-851-11 | s METAL, CHIP 330K 5% 1/16W         |
| R9                  | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W         |
| R10                 | 1-218-725-11 | s METAL 24K 0.50% 1/16W             |
| R11                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W         |
| R12                 | 1-216-847-11 | s METAL, CHIP 150K 5% 1/16W         |
| R13                 | 1-218-344-11 | s METAL 7.5K 0.50% 1/16W            |
| R14                 | 1-218-695-11 | s METAL 1.3K 0.50% 1/16W            |
| R15                 | 1-218-289-11 | s METAL 510 5% 1/16W                |
| R16                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W         |

## (SG-194P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                |
|---------------------|--------------|-------------------------------|
| R17                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W    |
| R18                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R19                 | 1-216-842-11 | s METAL, CHIP 56K 5% 1/16W    |
| R20                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W   |
| R21                 | 1-218-714-11 | s METAL 8.2K 0.50% 1/16W      |
| R22                 | 1-216-855-11 | s METAL 680K 5% 1/16W         |
| R23                 | 1-216-818-11 | s METAL, CHIP 560 5% 1/16W    |
| R24                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W   |
| R25                 | 1-216-811-11 | s METAL, CHIP 150 5% 1/16W    |
| R26                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R28                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R29                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R31                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R33                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R34                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R35                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R36                 | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W   |
| R37                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R38                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W   |
| R39                 | 1-216-831-11 | s METAL, CHIP 6.8K 5% 1/16W   |
| R40                 | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W   |
| R41                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R42                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W   |
| R43                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R44                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R45                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W    |
| R49                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R50                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W   |
| R51                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R52                 | 1-216-823-11 | s METAL, CHIP 1.5K 5% 1/16W   |
| R53                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R54                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W     |
| R55                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W     |
| R56                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W    |
| R58                 | 1-216-864-11 | s METAL, CHIP 0-OHM           |
| R59                 | 1-218-740-11 | s METAL 100K 0.50% 1/16W      |
| R60                 | 1-218-883-11 | s METAL, CHIP 33K 0.50% 1/16W |
| R61                 | 1-218-724-11 | s METAL 22K 0.50% 1/16W       |
| R62                 | 1-218-701-11 | s METAL 2.4K 0.50% 1/16W      |
| R63                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W       |
| R64                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W    |
| R65                 | 1-218-668-11 | s METAL, CHIP 100 0.50% 1/16W |
| R66                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W    |
| R67                 | 1-218-668-11 | s METAL, CHIP 100 0.50% 1/16W |
| R68                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W    |
| R69                 | 1-216-838-11 | s METAL, CHIP 27K 5% 1/16W    |
| R70                 | 1-216-804-11 | s METAL 39 5% 1/16W           |
| R71                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R72                 | 1-218-721-11 | s METAL 16K 0.50% 1/16W       |
| R73                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W       |
| R74                 | 1-218-732-11 | s METAL 47K 0.50% 1/16W       |
| R75                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W       |
| R76                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W       |
| R77                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R78                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R79                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W     |
| R80                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W      |
| R81                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W    |
| R82                 | 1-216-817-11 | s METAL, CHIP 470 5% 1/16W    |

## (SG-194P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R83                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R84                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W     |
| R85                 | 1-218-727-11 | s METAL 30K 0.50% 1/16W     |
| R86                 | 1-218-295-11 | s METAL 5.6K 0.50% 1/16W    |
| R87                 | 1-216-832-11 | s METAL, CHIP 8.2K 5% 1/16W |
| R88                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R89                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R90                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R91                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R92                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R93                 | 1-216-826-11 | s METAL, CHIP 2.7K 5% 1/16W |
| R94                 | 1-216-819-11 | s METAL, CHIP 680 5% 1/16W  |
| R95                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R96                 | 1-216-825-11 | s METAL, CHIP 2.2K 5% 1/16W |
| R97                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| RV1                 | 1-238-090-11 | s RES, ADJ CERMET 10K       |

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TG-102 BOARD  
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| Ref. No.<br>or Q'ty | Part No.     | SP Description                                            |
|---------------------|--------------|-----------------------------------------------------------|
| 1pc                 | A-8271-135-A | o MOUNTED CIRCUIT BOARD, TG-102<br>(DXC-930/960MD/XC-009) |
| C1                  | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                     |
| C2                  | 1-164-005-11 | s CERAMIC, CHIP 0.47uF 25V                                |
| C3                  | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                     |
| C4                  | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C5                  | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C6                  | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C7                  | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C8                  | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C9                  | 1-135-214-21 | s TANTALUM 4.7uF 20% 20V                                  |
| C10                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C11                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C12                 | 1-126-199-11 | s ELECT 6.8uF 20% 35V                                     |
| C13                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V                           |
| C14                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C15                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C17                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                            |
| C18                 | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                     |
| C19                 | 1-164-005-11 | s CERAMIC, CHIP 0.47uF 25V                                |
| C20                 | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                     |
| C21                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                               |
| C22                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                               |
| C23                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C24                 | 1-135-214-21 | s TANTALUM 4.7uF 20% 20V                                  |
| C25                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C26                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C27                 | 1-126-199-11 | s ELECT 6.8uF 20% 35V                                     |
| C28                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V                           |
| C29                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C30                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C31                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C32                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C33                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C34                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C35                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C36                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C37                 | 1-162-964-11 | s CERAMIC 0.001uF 10% 50V                                 |
| C38                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                               |
| C39                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C40                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C41                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V                           |
| C42                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C43                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                            |
| C44                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                               |
| C45                 | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                     |
| C46                 | 1-164-005-11 | s CERAMIC, CHIP 0.47uF 25V                                |
| C47                 | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                     |
| C48                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                               |
| C49                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C50                 | 1-135-214-21 | s TANTALUM 4.7uF 20% 20V                                  |
| C51                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| C52                 | 1-126-199-11 | s ELECT 6.8uF 20% 35V                                     |
| C53                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                            |
| C54                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                       |
| CN1                 | 1-691-630-21 | o CONNECTOR, FFC/FPC (ZIF) 20P                            |
| CN2                 | 1-691-630-21 | o CONNECTOR, FFC/FPC (ZIF) 20P                            |
| CN3                 | 1-691-630-21 | o CONNECTOR, FFC/FPC (ZIF) 20P                            |

(TG-102 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| D1                  | 8-719-820-05 | s DIODE 1SS181              |
| D2                  | 8-719-800-76 | s DIODE 1SS226              |
| D3                  | 8-719-820-05 | s DIODE 1SS181              |
| D4                  | 8-719-820-05 | s DIODE 1SS181              |
| D5                  | 8-719-800-76 | s DIODE 1SS226              |
| D6                  | 8-719-820-05 | s DIODE 1SS181              |
| D7                  | 8-719-820-05 | s DIODE 1SS181              |
| D8                  | 8-719-800-76 | s DIODE 1SS226              |
| D9                  | 8-719-820-05 | s DIODE 1SS181              |
| IC1                 | 8-752-327-48 | s IC CXD1250N               |
| IC2                 | 8-752-351-03 | s IC CXD1256AR              |
| IC3                 | 8-752-327-48 | s IC CXD1250N               |
| IC4                 | 8-759-925-90 | s IC SN74HC74NS             |
| IC5                 | 8-759-927-46 | s IC SN74HC00NS             |
| IC6                 | 8-752-327-48 | s IC CXD1250N               |
| IC7                 | 8-752-351-03 | s IC CXD1256AR              |
| IC8                 | 8-759-036-25 | s IC MC74AC04M              |
| Q1                  | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q2                  | 8-729-429-44 | s TRANSISTOR XP1501         |
| Q3                  | 8-729-429-98 | s TRANSISTOR XP1401         |
| Q5                  | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q6                  | 8-729-429-44 | s TRANSISTOR XP1501         |
| Q7                  | 8-729-429-98 | s TRANSISTOR XP1401         |
| Q8                  | 8-729-429-98 | s TRANSISTOR XP1401         |
| Q9                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q10                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q11                 | 8-729-429-44 | s TRANSISTOR XP1501         |
| R1                  | 1-216-850-11 | s METAL 270K 5% 1/16W       |
| R2                  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R3                  | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R4                  | 1-216-843-11 | s METAL, CHIP 68K 5% 1/16W  |
| R5                  | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R6                  | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R7                  | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R8                  | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W   |
| R9                  | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R10                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R11                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R12                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R16                 | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R17                 | 1-216-850-11 | s METAL 270K 5% 1/16W       |
| R18                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R19                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R20                 | 1-216-843-11 | s METAL, CHIP 68K 5% 1/16W  |
| R21                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W  |
| R22                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R23                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R24                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W   |
| R25                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R26                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R27                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R28                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R29                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W  |
| R30                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R31                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R32                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R33                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W  |

## (TG-102 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R34                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W   |
| R35                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R36                 | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R37                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R38                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W  |
| R39                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W  |
| R40                 | 1-216-850-11 | s METAL, CHIP 270K 5% 1/16W |
| R41                 | 1-216-843-11 | s METAL, CHIP 68K 5% 1/16W  |
| R42                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R43                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W   |
| R44                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R45                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R46                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R47                 | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| RV1                 | 1-238-092-11 | s RES, ADJ CERMET 47K       |
| RV2                 | 1-238-091-11 | s RES, ADJ CERMET 22K       |
| RV3                 | 1-238-092-11 | s RES, ADJ CERMET 47K       |
| RV4                 | 1-238-091-11 | s RES, ADJ CERMET 22K       |
| RV5                 | 1-238-091-11 | s RES, ADJ CERMET 22K       |
| RV6                 | 1-238-092-11 | s RES, ADJ CERMET 47K       |

## TG-102P BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                                          |
|---------------------|--------------|---------------------------------------------------------|
| lpc                 | A-8271-137-A | o MOUNTED CIRCUIT BOARD, TG-102P<br>(DXC-930P, XC-009P) |
| C1                  | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                   |
| C2                  | 1-164-005-11 | s CERAMIC, CHIP 0.47uF 25V                              |
| C3                  | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                   |
| C4                  | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C5                  | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C6                  | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C7                  | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C8                  | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C9                  | 1-135-214-21 | s TANTALUM 4.7uF 20% 20V                                |
| C10                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C11                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C12                 | 1-126-199-11 | s ELECT 6.8uF 20% 35V                                   |
| C13                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V                         |
| C14                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C15                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C17                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                          |
| C18                 | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                   |
| C19                 | 1-164-005-11 | s CERAMIC, CHIP 0.47uF 25V                              |
| C20                 | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                   |
| C21                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                             |
| C22                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                             |
| C23                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C24                 | 1-135-214-21 | s TANTALUM 4.7uF 20% 20V                                |
| C25                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C26                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C27                 | 1-126-199-11 | s ELECT 6.8uF 20% 35V                                   |
| C28                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V                         |
| C29                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C30                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C31                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C32                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C33                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C34                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C35                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C36                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C37                 | 1-162-964-11 | s CERAMIC 0.001uF 10% 50V                               |
| C38                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                             |
| C39                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C40                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C41                 | 1-135-180-21 | s TANTALUM, CHIP 3.3uF 20% 6.3V                         |
| C42                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C43                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V                          |
| C44                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                             |
| C45                 | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                   |
| C46                 | 1-164-005-11 | s CERAMIC, CHIP 0.47uF 25V                              |
| C47                 | 1-126-194-21 | s ELECT 1.5uF 20% 50V                                   |
| C48                 | 1-162-919-11 | s CERAMIC, CHIP 22PF 5% 50V                             |
| C49                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C50                 | 1-135-214-21 | s TANTALUM 4.7uF 20% 20V                                |
| C51                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| C52                 | 1-126-199-11 | s ELECT 6.8uF 20% 35V                                   |
| C53                 | 1-135-157-21 | s TANTALUM, CHIP 10uF 10% 6.3V                          |
| C54                 | 1-164-156-11 | s CERAMIC 0.1uF 25V                                     |
| CN1                 | 1-691-630-21 | o CONNECTOR, FFC/FPC (ZIF) 20P                          |
| CN2                 | 1-691-630-21 | o CONNECTOR, FFC/FPC (ZIF) 20P                          |
| CN3                 | 1-691-630-21 | o CONNECTOR, FFC/FPC (ZIF) 20P                          |

## (TG-102P BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| D1                  | 8-719-820-05 | s DIODE 1SS181              |
| D2                  | 8-719-800-76 | s DIODE 1SS226              |
| D3                  | 8-719-820-05 | s DIODE 1SS181              |
| D4                  | 8-719-820-05 | s DIODE 1SS181              |
| D5                  | 8-719-800-76 | s DIODE 1SS226              |
| D6                  | 8-719-820-05 | s DIODE 1SS181              |
| D7                  | 8-719-820-05 | s DIODE 1SS181              |
| D8                  | 8-719-800-76 | s DIODE 1SS226              |
| D9                  | 8-719-820-05 | s DIODE 1SS181              |
| IC1                 | 8-752-327-48 | s IC CXD1250N               |
| IC2                 | 8-752-351-03 | s IC CXD1256AR              |
| IC3                 | 8-752-327-48 | s IC CXD1250N               |
| IC4                 | 8-759-925-90 | s IC SN74HC74NS             |
| IC5                 | 8-759-927-46 | s IC SN74HC00NS             |
| IC6                 | 8-752-327-48 | s IC CXD1250N               |
| IC7                 | 8-752-351-03 | s IC CXD1256AR              |
| IC8                 | 8-759-036-25 | s IC MC74AC04M              |
| Q1                  | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q2                  | 8-729-429-44 | s TRANSISTOR XP1501         |
| Q3                  | 8-729-429-98 | s TRANSISTOR XP1401         |
| Q5                  | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q6                  | 8-729-429-44 | s TRANSISTOR XP1501         |
| Q7                  | 8-729-429-98 | s TRANSISTOR XP1401         |
| Q8                  | 8-729-429-98 | s TRANSISTOR XP1401         |
| Q9                  | 8-729-117-16 | s TRANSISTOR 2SA1611-M6     |
| Q10                 | 8-729-117-32 | s TRANSISTOR 2SC4177        |
| Q11                 | 8-729-429-44 | s TRANSISTOR XP1501         |
| R1                  | 1-216-850-11 | s METAL, CHIP 270K 5% 1/16W |
| R2                  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R3                  | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R4                  | 1-216-843-11 | s METAL, CHIP 68K 5% 1/16W  |
| R5                  | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R6                  | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R7                  | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R8                  | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W   |
| R9                  | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R10                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R11                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R12                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R15                 | 1-216-864-11 | s METAL, CHIP 0-OHM         |
| R17                 | 1-216-850-11 | s METAL, CHIP 270K 5% 1/16W |
| R18                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R19                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R20                 | 1-216-843-11 | s METAL, CHIP 68K 5% 1/16W  |
| R21                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W  |
| R22                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R23                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R24                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W   |
| R25                 | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R26                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R27                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R28                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R29                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W  |
| R30                 | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R31                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W |
| R32                 | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W |
| R33                 | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W  |

## (TG-102P BOARD)

| Ref. No.<br>or Q'ty     | Part No.     | SP Description                                               |
|-------------------------|--------------|--------------------------------------------------------------|
| R34                     | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W                                    |
| R35                     | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W                                   |
| R36                     | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W                                   |
| R37                     | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W                                  |
| R38                     | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W                                   |
| R39                     | 1-216-813-11 | s METAL, CHIP 220 5% 1/16W                                   |
| R40                     | 1-216-850-11 | s METAL, CHIP 270K 5% 1/16W                                  |
| R41                     | 1-216-843-11 | s METAL, CHIP 68K 5% 1/16W                                   |
| R42                     | 1-216-845-11 | s METAL, CHIP 100K 5% 1/16W                                  |
| R43                     | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W                                    |
| R44                     | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W                                   |
| R45                     | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W                                   |
| R46                     | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W                                   |
| R47                     | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W                                    |
| RV1                     | 1-238-092-11 | s RES, ADJ CERMET 47K                                        |
| RV2                     | 1-238-091-11 | s RES, ADJ CERMET 22K                                        |
| RV3                     | 1-238-092-11 | s RES, ADJ CERMET 47K                                        |
| RV4                     | 1-238-091-11 | s RES, ADJ CERMET 22K                                        |
| RV5                     | 1-238-091-11 | s RES, ADJ CERMET 22K                                        |
| RV6                     | 1-238-092-11 | s RES, ADJ CERMET 47K                                        |
| -----<br>FRAME<br>----- |              |                                                              |
| Ref. No.<br>or Q'ty     | Part No.     | SP Description                                               |
| lpc                     | 1-547-463-11 | o FILTER UNIT, OPTICAL                                       |
| CN1F(to MB-380 board)   | 1-949-642-11 | o HARNESS (ZOOM)                                             |
|                         | 1-565-122-11 | o HOUSING, 3P                                                |
|                         | 1-565-164-21 | o CONTACT, FEMALE AWG26-28                                   |
| CN12F(to MB-380 board)  | 1-949-643-11 | o HARNESS (IRIS)                                             |
|                         | 1-565-123-11 | o HOUSING, 4P                                                |
|                         | 1-565-164-21 | o CONTACT, FEMALE AWG26-28                                   |
| CN3                     | 1-562-222-21 | s CONNECTOR, 6P FEMALE "LENS"                                |
| CN4                     | 1-691-629-11 | s CONNECTOR, 20P MALE "CCU"<br>(DXC-930/930P/960MD)          |
| CN4                     | 1-562-381-00 | s CONNECTOR, 12P MALE "DC IN/VBS"<br>(XC-009/009P)           |
| CN5                     | 1-580-090-11 | s CONNECTOR, D-SUB 9P "RGE/SYNC"                             |
| CN6                     | 1-562-381-00 | s CONNECTOR, 12P MALE "DC IN/REMOTE"<br>(DXC-930/930P/960MD) |
| CN6                     | 1-563-929-11 | s CONNECTOR, 4P FEMALE "CONTROL"<br>(XC-009/009P)            |
| CN7                     | 1-580-724-21 | s CONNECTOR, BNC "GENLOCK"                                   |
| CN8                     | 1-580-724-21 | s CONNECTOR, BNC "VIDEO OUT"                                 |

## SECTION E CHANGED PARTS

NOTE: The numbers identified by making with ) are  
matching with each serial numbers.

### DXC-930

112) Serial No. 10071 through 10120  
201) Serial No. 10121 through 10170  
202) Serial No. 10171 through 10270  
203) Serial No. 10271 through 10320  
204) Serial No. 10321 through 10570  
207) Serial No. 10571 and higher

### DXC-930P

112) Serial No. 10131 through 10230  
201) Serial No. 10231 through 10380  
202) Serial No. 10381 through 10480  
203) Serial No. 10481 through 10580  
204) Serial No. 10581 through 10980  
207) Serial No. 10981 and higher  
207) Serial No. 50061 and higher (UC)

### ----- AT-69 BOARD -----

OLD) IC20 8-759-064-54 s IC HD63B05Y0E53F  
201) IC20 8-759-078-51 s IC HD63B05Y0E64F

### ----- CN-579 BOARD(For DXC-930/930P/960MD) -----

OLD) C22 NOT IN USE.  
112) C22 1-135-159-21 s TANTALUM, CHIP 10uF 10% 20V  
OLD) R37 1-218-298-11 s METAL, CHIP 2.2K 1% 1/16W  
207) R37 1-218-271-11 s METAL 2K 0.50% 1/16W  
OLD) R38 1-216-864-11 s METAL, CHIP 0-OHM  
207) R38 1-218-286-11 s METAL, CHIP 91 0.50% 1/16W

### ----- CN-580 BOARD(For XC-009/009P) -----

OLD) R31 1-216-864-11 s METAL, CHIP 0-OHM  
207) R31 1-218-286-11 s METAL, CHIP 91 0.50% 1/16W  
OLD) R32 1-218-298-11 s METAL, CHIP 2.2K 1% 1/16W  
207) R32 1-218-271-11 s METAL 2K 0.50% 1/16W

### DXC-960MD

112) Serial No. 10001 through 10050  
203) Serial No. 10051 through 10150  
204) Serial No. 10151 through 10200  
207) Serial No. 10251 and higher

### XC-009

112) Serial No. 10071 through 10120  
201) Serial No. 10121 through 10170  
204) Serial No. 10171 through 10220  
207) Serial No. 10321 and higher

### XC-009P

112) Serial No. 10001 through 10030  
201) Serial No. 10031 through 10060  
204) Serial No. 10061 through 10110  
207) Serial No. 10111 and higher

### ----- IF-354/354P BOARD -----

OLD) C62 NOT IN USE.  
203) C62 1-135-210-11 s TANTALUM 4.7uF 20% 10V  
OLD) C63 NOT IN USE.  
203) C63 1-135-210-11 s TANTALUM 4.7uF 20% 10V  
OLD) C64 NOT IN USE.  
203) C64 1-162-911-11 s CERAMIC, CHIP 6PF 50V

OLD) Q64 NOT IN USE.  
203) Q64 8-729-427-83 s TRANSISTOR XP6501  
OLD) R99 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
203) R99 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W  
OLD) R117 1-216-807-11 s METAL, CHIP 68 5% 1/16W  
202) R117 1-216-864-11 s METAL, CHIP 0-OHM

OLD) R142 1-216-808-11 s METAL, CHIP 82 5% 1/16W  
202) R142 1-216-864-11 s METAL, CHIP 0-OHM  
OLD) R146 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
203) R146 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W  
OLD) R156 NOT IN USE.  
203) R156 1-216-833-11 s METAL, CHIP 10K 5% 1/16W

OLD) R157 NOT IN USE.  
203) R157 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
OLD) R158 NOT IN USE.  
203) R158 1-218-740-11 s METAL, CHIP 100K 0.50% 1/16W  
204) R158 1-218-739-11 s METAL, CHIP 91K 0.50% 1/16W  
203) R159 NOT IN USE.  
203) R159 1-218-700-11 s METAL 2.2K 0.50% 1/16W

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MB-380 BOARD  
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OLD) CN10 1-690-670-11 s CABLE, FLAT (1.0MM) 15P  
203) CN10 1-690-670-12 s CABLE, FLAT (1.0MM) 15P  
OLD) CN11 1-690-670-11 s CABLE, FLAT (1.0MM) 15P  
203) CN11 1-690-670-12 s CABLE, FLAT (1.0MM) 15P  
OLD) L3 1-412-026-11 s INDUCTOR CHIP 1uH  
203) L3 DELETED.  
  
OLD) L9 NOT IN USE.  
112) L9 1-412-535-41 s INDUCTOR 68UH

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PR-158 BOARD  
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OLD) C2 1-162-908-11 s CERAMIC 3PF 0.25PF 50V  
112) C2 1-162-910-11 s CERAMIC 5PF 0.25PF 50V  
OLD) C50 1-162-908-11 s CERAMIC 3PF 0.25PF 50V  
112) C50 1-162-910-11 s CERAMIC 5PF 0.25PF 50V  
OLD) C127 1-102-074-00 s CERAMIC 0.001uF 10% 50V  
203) C127 1-162-964-11 s CERAMIC CHIP 0.001uF 10% 50V  
  
OLD) C128 NOT IN USE.  
203) C128 1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V  
OLD) Q56 8-729-117-32 s TRANSISTOR 2SC4177  
203) Q56 8-729-427-83 s TRANSISTOR XP6501  
OLD) Q64 8-729-117-16 s TRANSISTOR 2SA1611-M6  
203) Q64 8-729-427-83 s TRANSISTOR XP6501  
  
OLD) Q87 NOT IN USE.  
203) Q87 8-729-117-32 s TRANSISTOR 2SC4177  
OLD) Q89 NOT IN USE.  
203) Q89 8-729-117-32 s TRANSISTOR 2SC4177  
OLD) Q90 NOT IN USE.  
203) Q90 8-729-117-32 s TRANSISTOR 2SC4177  
  
OLD) R136 NOT IN USE.  
203) R136 1-218-700-11 s METAL 2.2K 0.50% 1/16W  
OLD) R137 1-216-835-11 s METAL, CHIP 15K 5% 1/16W  
203) R137 1-218-253-11 s METAL, CHIP 2.32K 0.5% 1/10W  
OLD) R138 1-218-716-11 s METAL 10K 0.50% 1/16W  
203) R138 1-218-255-11 s METAL, CHIP 2.67K 0.5% 1/10W  
  
OLD) R139 1-218-716-11 s METAL 10K 0.50% 1/16W  
203) R139 1-218-700-11 s METAL 2.2K 0.50% 1/16W  
OLD) R143 1-218-697-11 s METAL 1.6K 0.50% 1/16W  
203) R143 DELETED.  
OLD) R145 1-218-272-11 s METAL 5.1K 0.50% 1/16W  
203) R145 DELETED.  
  
OLD) R146 1-218-706-11 s METAL 3.9K 0.50% 1/16W  
203) R146 DELETED.  
OLD) R147 1-218-704-11 s METAL 3.3K 0.50% 1/16W  
203) R147 DELETED.  
OLD) R148 1-218-706-11 s METAL 3.9K 0.50% 1/16W  
203) R148 DELETED.  
  
OLD) R149 1-218-707-11 s METAL 4.3K 0.50% 1/16W  
203) R149 DELETED.  
OLD) R150 1-218-706-11 s METAL 3.9K 0.50% 1/16W  
203) R150 DELETED.  
OLD) R171 NOT IN USE.  
203) R171 1-218-256-11 s METAL, CHIP 3.32K 0.5% 1/10W

(PR-158 BOARD)

OLD) R172 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W  
203) R172 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
OLD) R173 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W  
203) R173 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W  
204) R173 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
  
OLD) R177 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
203) R177 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W  
OLD) R180 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W  
204) R180 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
OLD) R196 NOT IN USE.  
203) R196 1-218-252-11 s METAL, CHIP 2.26K 0.5% 1/10W  
  
OLD) R197 1-218-271-11 s METAL 2K 0.50% 1/16W  
203) R197 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W  
OLD) R199 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
203) R199 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W  
OLD) R212 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
203) R212 DELETED.  
  
OLD) R244 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
203) R244 1-216-821-11 s METAL, CHIP 1K 5% 1/16W  
OLD) R282 NOT IN USE.  
203) R282 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
OLD) R283 NOT IN USE.  
203) R283 1-216-821-11 s METAL, CHIP 1K 5% 1/16W  
  
OLD) R284 NOT IN USE.  
203) R284 1-216-821-11 s METAL, CHIP 1K 5% 1/16W  
OLD) R285 NOT IN USE.  
203) R285 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W  
OLD) R286 NOT IN USE.  
203) R286 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
  
OLD) R287 NOT IN USE.  
203) R287 1-216-822-11 s METAL, CHIP 1.2K 5% 1/16W  
OLD) R288 NOT IN USE.  
203) R288 1-216-822-11 s METAL, CHIP 1.2K 5% 1/16W  
OLD) R289 NOT IN USE.  
203) R289 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W  
  
OLD) R290 NOT IN USE.  
203) R290 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
OLD) R291 NOT IN USE.  
203) R291 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W  
203) R292 NOT IN USE.  
203) R292 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
  
OLD) R293 NOT IN USE.  
203) R293 1-249-441-11 s CARBON, 100K 5% 1/4W  
207) R293 1-216-845-11 s METAL, CHIP 100K 5% 1/16W  
OLD) R294 NOT IN USE.  
207) R294 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W  
  
OLD) R295 NOT IN USE.  
207) R295 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W  
OLD) R296 NOT IN USE.  
207) R296 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W  
  
OLD) R300 NOT IN USE.  
204) R300 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W  
207) R300 NOT IN USE.  
OLD) R301 NOT IN USE.  
204) R301 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W  
207) R301 NOT IN USE.



## (PR-158 BOARD)

OLD) R302 NOT IN USE.  
 204) R302 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W  
 207) R302 NOT IN USE.

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 PR-158P BOARD  
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OLD) C2 1-162-908-11 s CERAMIC 3PF 0.25PF 50V  
 203) C2 1-162-910-11 s CERAMIC 5PF 0.25PF 50V  
 OLD) C50 1-162-908-11 s CERAMIC 3PF 0.25PF 50V  
 203) C50 1-162-910-11 s CERAMIC 5PF 0.25PF 50V  
 OLD) C127 1-102-074-00 s CERAMIC 0.001uF 10% 50V  
 203) C127 1-162-964-11 s CERAMIC, CHIP 0.001uF 10% 50V

OLD) C128 NOT IN USE.  
 203) C128 1-162-927-11 s CERAMIC, CHIP 100PF 5% 50V  
 OLD) Q56 8-729-117-32 s TRANSISTOR 2SC4177  
 203) Q56 8-729-427-83 s TRANSISTOR XP6501  
 OLD) Q64 8-729-117-16 s TRANSISTOR 2SA1611-M6  
 203) Q64 8-729-427-83 s TRANSISTOR XP6501

OLD) Q87 NOT IN USE.  
 203) Q87 8-729-117-32 s TRANSISTOR 2SC4177  
 OLD) Q89 NOT IN USE.  
 203) Q89 8-729-117-32 s TRANSISTOR 2SC4177  
 OLD) Q90 NOT IN USE.  
 203) Q90 8-729-117-32 s TRANSISTOR 2SC4177

OLD) R136 1-216-832-11 s METAL, CHIP 8.2K 5% 1/16W  
 203) R136 1-218-700-11 s METAL 2.2K 0.50% 1/16W  
 OLD) R137 NOT IN USE.  
 203) R137 1-218-259-11 s METAL, CHIP 13.7K 0.5% 1/10W  
 OLD) R138 1-218-716-11 s METAL 10K 0.50% 1/16W  
 203) R138 1-218-254-11 s METAL, CHIP 2.55K 0.5% 1/10W

OLD) R139 1-218-716-11 s METAL 10K 0.50% 1/16W  
 203) R139 DELETED.  
 OLD) R143 1-218-271-11 s METAL 2K 0.50% 1/16W  
 203) R143 DELETED.  
 OLD) R144 1-216-832-11 s METAL 8.2K 5% 1/16W  
 203) R144 DELETED.

OLD) R145 1-218-704-11 s METAL 3.3K 0.50% 1/16W  
 203) R145 DELETED.  
 OLD) R146 1-218-706-11 s METAL 3.9K 0.50% 1/16W  
 203) R146 DELETED.  
 OLD) R147 1-216-834-11 s METAL, CHIP 12K 5% 1/16W  
 203) R147 DELETED.

OLD) R148 1-218-298-11 s METAL, CHIP 2.2K 1% 1/16W  
 203) R148 DELETED.  
 OLD) R149 1-218-708-11 s METAL 4.7K 0.50% 1/16W  
 203) R149 DELETED.  
 OLD) R150 1-218-706-11 s METAL 3.9K 0.50% 1/16W  
 203) R150 DELETED.

OLD) R152 NOT IN USE.  
 203) R152 1-218-254-11 s METAL, CHIP 2.55K 0.5% 1/10W  
 OLD) R167 NOT IN USE.  
 203) R167 1-218-257-11 s METAL, CHIP 4.99K 0.5% 1/10W  
 OLD) R172 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W  
 203) R172 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W

## (PR-158P BOARD)

OLD) R173 1-216-830-11 s METAL, CHIP 5.6K 5% 1/16W  
 203) R173 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W  
 204) R173 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
 OLD) R177 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
 203) R177 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W

OLD) R180 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W  
 204) R180 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
 OLD) R197 1-218-271-11 s METAL 2K 0.50% 1/16W  
 203) R197 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W  
 OLD) R199 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
 203) R199 1-216-824-11 s METAL, CHIP 1.8K 5% 1/16W

OLD) R212 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
 203) R212 DELETED.  
 OLD) R227 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
 203) R227 1-216-831-11 s METAL, CHIP 6.8K 5% 1/16W  
 OLD) R244 1-216-825-11 s METAL, CHIP 2.2K 5% 1/16W  
 203) R244 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

OLD) R273 1-218-740-11 s METAL 100K 0.50% 1/16W  
 203) R273 1-218-700-11 s METAL 2.2K 0.50% 1/16W  
 OLD) R282 NOT IN USE.  
 203) R282 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W  
 OLD) R283 NOT IN USE.  
 203) R283 1-216-821-11 s METAL, CHIP 1K 5% 1/16W

OLD) R284 NOT IN USE.  
 203) R284 1-216-821-11 s METAL, CHIP 1K 5% 1/16W  
 OLD) R285 NOT IN USE.  
 203) R285 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W  
 OLD) R286 NOT IN USE.  
 203) R286 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W

OLD) R287 NOT IN USE.  
 203) R287 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W  
 OLD) R288 NOT IN USE.  
 203) R288 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W  
 OLD) R289 NOT IN USE.  
 203) R289 1-216-823-11 s METAL, CHIP 1.5K 5% 1/16W

OLD) R290 NOT IN USE.  
 203) R290 1-216-829-11 s METAL, CHIP 4.7K 5% 1/16W  
 OLD) R291 NOT IN USE.  
 203) R291 1-216-826-11 s METAL, CHIP 2.7K 5% 1/16W  
 OLD) R292 NOT IN USE.

203) R292 1-216-827-11 s METAL, CHIP 3.3K 5% 1/16W

OLD) R293 NOT IN USE.  
 203) R293 1-249-441-11 s CARBON, 100K 5% 1/4W  
 207) R293 1-216-845-11 s METAL, CHIP 100K 5% 1/16W  
 OLD) R294 NOT IN USE.  
 207) R294 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W

OLD) R295 NOT IN USE.  
 207) R295 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W  
 OLD) R296 NOT IN USE.  
 207) R296 1-216-828-11 s METAL, CHIP 3.9K 5% 1/16W

OLD) R300 NOT IN USE.  
 204) R300 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W  
 207) R300 NOT IN USE.  
 OLD) R301 NOT IN USE.  
 204) R301 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W  
 207) R301 NOT IN USE.

OLD) R302 NOT IN USE.  
 204) R302 1-216-063-00 s METAL, CHIP 3.9K 5% 1/10W  
 207) R302 NOT IN USE.

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SG-194/194PBOARD  
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|      |     |                                          |
|------|-----|------------------------------------------|
| OLD) | C55 | 1-162-923-11 s CERAMIC, CHIP 47PF 5% 50V |
| 203) | C55 | DELETED.                                 |
| OLD) | C66 | 1-162-806-11 s CERAMIC 0.1uF 10% 50V     |
| 203) | C66 | DELETED.                                 |
| OLD) | C67 | NOT IN USE.                              |
| 202) | C67 | 1-164-156-11 s CERAMIC 0.1uF 25V         |
| OLD) | R63 | 1-216-834-11 s METAL, CHIP 12K 5% 1/16W  |
| 112) | R63 | 1-218-716-11 s METAL 10K 0.50% 1/16W     |

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

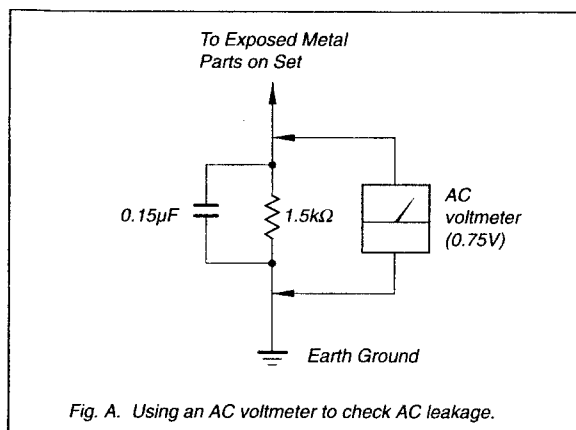


Fig. A. Using an AC voltmeter to check AC leakage.